BRITAIN'S LEADING MAGAZINE FOR YOUR ATARI ST

ISSUE 7 ■ FEBRUARY 1990 ■ £2.95

ST FORMAT

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DISCOVER COLOUR

COVER DISK 7

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NEED HELP? TURN TO **PAGE 23** WHERE ALL IS REVEALED

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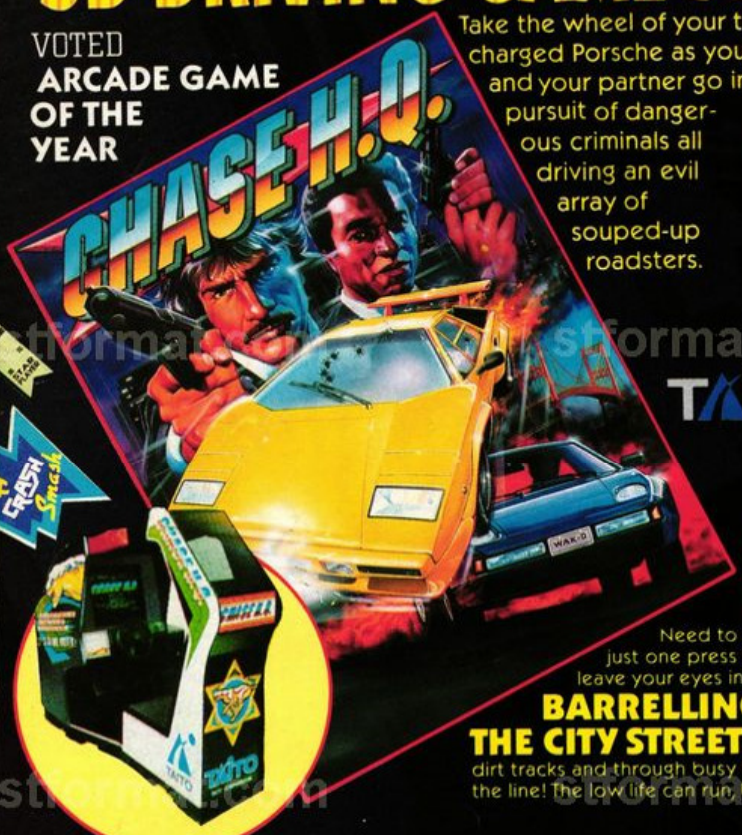

Take the wheel of your turbo-charged Porsche as you and your partner go in pursuit of dangerous criminals all driving an evil array of souped-up roadsters.

TAITO

TURBO BOOST!

Need to catch up in a hurry? Well, just one press of your Turbo Button will leave your eyes in the back of your head!

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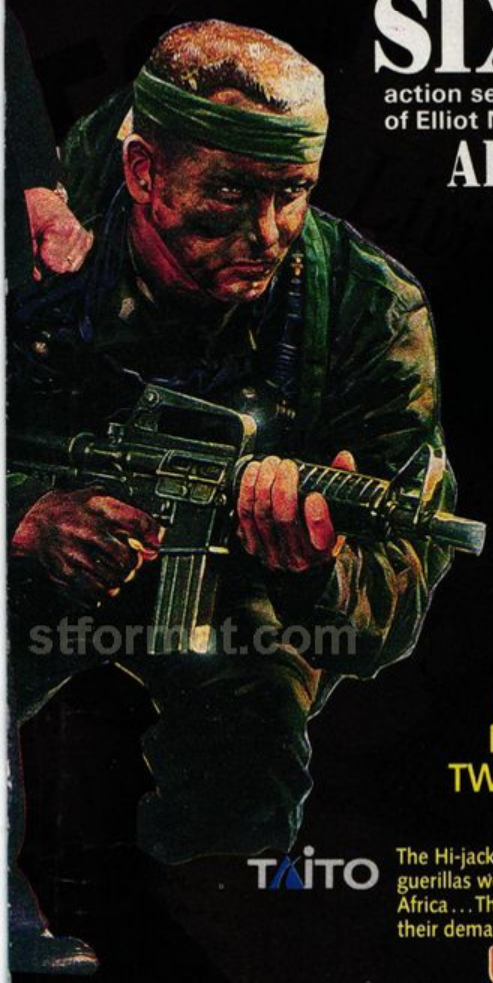


SIX INSPIRED

action sequences put you in control of Elliot Ness's elite squad of crime-busters.

ALLEYWAY SHOOTOUTS, THE BORDER RAID,

The Railway Station confrontation and Warehouse bust culminating in the thrilling denouement of a

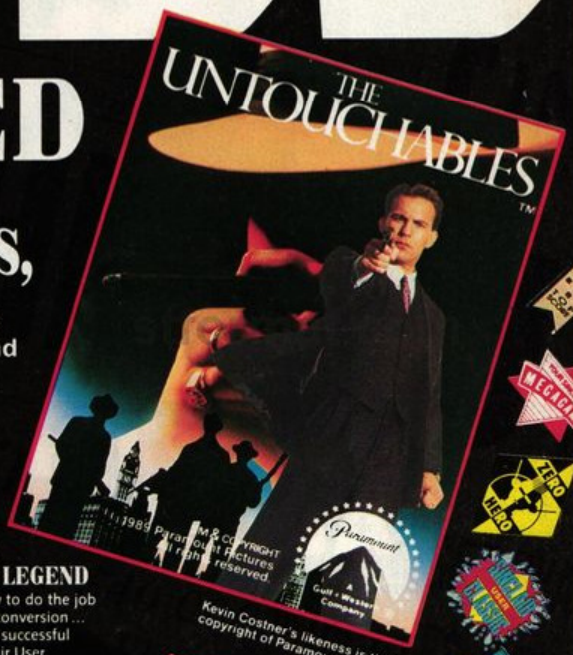
ROOFTOP DUEL

as you re-live the knife edge existence of Ness in his struggle against the retribution of Capone!

THE UNTOUCHABLES – LIVE AN AMERICAN LEGEND

"an absolute corker of a game ... as smooth and polished as you can get. animation is top notch ... a brilliant film conversion" Games Machine

"a fine example of how to do the job properly ... a cracking conversion ... easily one of the most successful licences to date" Sinclair User



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BLOCKBUSTER FOLLOW-UP TO LAST CHRISTMAS'S No. 1 HIT... OPERATION WOLF...

NOW WITH TWICE THE ACTION, TWICE THE FUN, TWICE THE CHALLENGE

ROY ADAM IS BACK!

TAITO

The Hi-jack report came from a DC10 leaving Paris for Boston – Arab guerillas were in control of flight 102 and had turned the aircraft towards Africa ... The plane lands in hostile territory and the terrorists begin their demands ...

USE THE LASERSIGHT

or the bulletproof vest, but watch out for

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Operation Thunderbolt the incredible Taito coin-op conversion brought NOW to your home computer.

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COVER DISK 23

Side A

SKATE TRIBE A fully playable action-packed skateboarding frenzy. Hang ten and hit the streets!
PLAYBACK Source files for playing background samples. The ST is the musicians machine!
C PROGRAM Complementing our new guide to programming in C (see page 97)
STOS FILES Scrolling routines

Side B

4PAK Superb file cruncher
ANIMATION SEQUENCES Mark "the pix" Pickavance takes you on another graphics extravaganza (see tutorial on page 103)
RESTORE Returns colour to normal
F40 DEMO Ferrari fever for all speed-freak gamesters

■ *Skate Tribe's* urban assault course will test your skating skills to the limit!

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QUARTET

THE DIGITAL MUSIC MACHINE

THE DIGITAL MUSIC MACHINE

THE POWER OF A MUSIC SYNTHESISER IN YOUR ST

QUARTET is a 4-voice polyphonic music synthesiser, being polyphonic it is the first program to actually allow 4 instruments to be played back at the same time. Quartet turns your ST into a real musical Quartet. It runs on a standard 520 ST and does not require any special hardware. As you become more professional you might want to import your own sounds from Microdeal's "REPLAY" sound sampler and add a keyboard with Midi connections for input of music or playback of sounds.

QUARTET really stands up to its name having the ability to play back four voices simultaneously using programming techniques entirely unique to Microdeal that allow music playback at up to 15 kHz to give unrivalled sound quality from your ST. This style of sample sequencing has previously only been available to professional programmers and musicians, with systems costing hundreds of times more.

WITH QUARTET YOU CAN:

COMPOSE music on the four scrolling staves by either input from the mouse or by playing on a Midi Keyboard/Instrument connected to your Atari ST's Midi ports.

CHOOSE your instrument from a choice of over 100 musical instruments and sounds included with Quartet or import the sound from Microdeal's "REPLAY" sound sampling cartridge. Up to 20 instruments can be selected for playback in any piece of music. Imagine being able to compose your own music for your own Quartet of 2 Violins, a Viola and a Cello, and then being able to change instruments to a Piano, flute, harp and bassoon.

PLAY back from QUARTET'S four channels simultaneously through your Television, Monitor, or for really high quality through Microdeal's "REPLAY" sound sampling cartridge. From "Classical" to "Modern", "Beethoven" to "Bomb the Bass", Quartet will play them all.

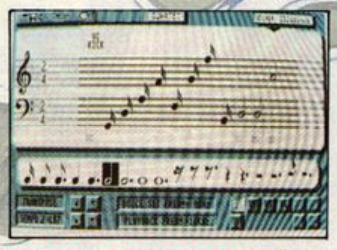
QUARTET FEATURES:

- ★ 4 voice sampled music synthesis
- ★ Simple, powerful mouse controlled on-score music editor
- ★ Simple to use slides and loops
- ★ Variable sample playback from 4 to 16 kHz
- ★ Up to 20 samples in memory at one time
- ★ Playback through Television, Monitor or Microdeal's "REPLAY"
- ★ A selection of over 100 sampled musical instruments and sounds
- ★ Use samples from "REPLAY" or any popular sampler
- ★ High quality playback through "REPLAY"
- ★ Sample processor allows filtering and repeating samples
- ★ Simple to add your songs to your own programs
- ★ Includes routines for GFA & Hi-Soft basics, C & Assembler
- ★ Full MIDI compatibility if you own a Midi keyboard
- ★ Digital processing software to change the pitch of samples
- ★ Also supports "REPLAY" professional.

MIDI COMPATIBILITY:

If you have a keyboard or instrument with a Midi Out socket then Music can be entered into one of Quartet's 4 channels by simply selecting the Midi Record mode, whilst you are recording this channel, Quartet plays back any of the other channels previously recorded.

Instruments or sounds held in Quartets memory can be replayed on your Midi instrument by selecting Quartets Polyphonic play mode, this allows you to replay up to 4 different notes simultaneously so chords are no problem to Quartet.



QUARTET MAIN SCREEN

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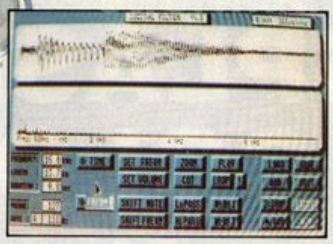

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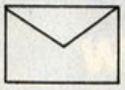
QUARTET ORDER FORM

Quartet is £49.95 post & packing £1 (all prices inc V.A.T.)

BY PHONE WITH CREDIT CARDS

(0726) 68020



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STE RUNS INTO TROUBLE

STOS WON'T WORK!

Many owners may get more than they bargained for after upgrading to the newly available STE. At least one major software application has been found to be entirely incompatible with the machine, and there may be many more.

As *ST Format* went to press, Mandarin Software discovered that their highly popular *STOS* games creator refused to work with the STE. *STOS* program disks crashed or simply wouldn't boot and games written using the program refused all attempts to run them. "We found that STOS just wouldn't work with the STE," said Mandarin spokesperson Peter Lee. The company have produced an upgrade about to be released into the public domain which will enable *STOS* to operate successfully with the STE. "Old STOS products will be upgraded," said Lee, "the patch should also allow games written with *STOS* to work properly too. We've tried *Games Galore* (the recently released compilation of some of the best *STOS*-produced games) and it worked OK."

However, the problems doesn't end with *STOS*. Public domain libraries are finding that many of their demos, utilities and games are producing strange results. "I've found a moderate amount of incompatibility with the demos," complained Mike Goodman of the Goodman Public Domain Library. "Some of the well-known demos such as the *Union* demo won't even boot."

Goodman estimates that around 50% of demos, music and graphics programs won't run on the new computer. One main item experiencing incompatibility is GFA's mono emulator which is a staple of the library. "There are two mono emulators," explained Goodman, "the *GFA* which appeared on the Cover Disk of *ST Format* and the *Mid West* emulator. Many programs will work with only one or the other, but the *GFA* doesn't work properly with the STE." This means that users who previously relied upon the *GFA* mono emulator to run their PD will not be able to make use of the software with the STE. Mike Goodman can confirm however, that other *GFA* products work perfectly; "I've tried other stuff and it's fine."

■ The STE: having serious compatiblity problems

There's also a problem associated with booting the STE in medium resolution. Earlier versions of TOS enabled users to save their desired screen configuration as a Desktop.inf file which, if placed on the boot-up disk, fired up the ST into medium resolution. The STE however, effectively ignores the Desktop.inf file and boots into either low or high resolution depending upon the display attached to the machine. "I've found that desktop accessories requiring a medium resolution boot-up give an accessory not loaded message, and the STE boots into low res."

Atari UK confirmed the medium resolution problem saying that as no commercial software booted into medium resolution anyway, the problem was minimal. However, the company is looking hard at other incompatibility complaints.

■ *Format* will endeavour to keep you informed on developments.

ATARI DISMISS AMIGA SALES CLAIMS

Warring rivals Atari and Commodore have broken into a fresh round of feuding after Atari alleged that the recent sales figures announced by Commodore are "grossly exaggerated." After marking the 200,000th Amiga A500 sale with public celebrations, press releases and photographs of the couple responsible for the final A500 purchase, Atari responded with a clear message: Commodore is padding its sales figures for the A500.

"All Amigas which come into the country go to our warehousing facility in Peteborough," said Marketing Communications Manager, Jennifer Perry. "That way we know where the machine has come from, where it's going and how many we've sold."

Unfortunately there is no independent body to validate sales claims made by computer manufacturers. Figures have to be accepted in good faith, leaving the way clear for unscrupulous companies to make exaggerated claims. The Atari ST has always had the lion's share of the 16-bit home computer market, due mainly to its reaching the market ahead of the Amiga and its lower price. However, this Christmas will see the two machines priced the same for the first time.

■ Same as it ever was: the ST and the Amiga A500 remain best of enemies

■ The Mega ST to be reduced in price

MEGA: VOTE OF CONFIDENCE

Atari have squashed rumours that they are about to cease production of the Mega range of STs by announcing they are to continue to sell the Mega – but at a reduced price.

ST users in the United States were worried that the launch of the STE range would spell the end of the line for the Mega series. But sources close to Atari insist that the company will continue production and support of the machines.

Meanwhile, the first examples of the 520 version of the STE are hitting the high street retailers and although stocks are low, the machine should be in plentiful supply before spring.

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STACY HITS THE HIGH STREET

After much clamouring, UK stores have received their first shipment of Atari's new portable, the STACY laptop. When launched at the Atari Messe in Dusseldorf, the STACY attracted much interest from industry pundits, but punters wondered just when they'd be able to buy the machine. In an uncharacteristic show of speed, Atari rushed the STACY to the UK marketplace in time to enjoy Christmas sales.

Two models are available, the STACY 4 and STACY 2, and a further model – the STACY 1 – should be available as you read this. The move has quietened claims that there was no entry-level version of the machine.

The STACY 2 is shipped with a 20Mbyte hard drive, a 1Mbyte floppy drive and 2 megs of RAM, priced at £1,299. The top-of-range STACY 4 has a 40Mbyte hard drive, 1Mbyte floppy and 4 megs of RAM for £1,799.

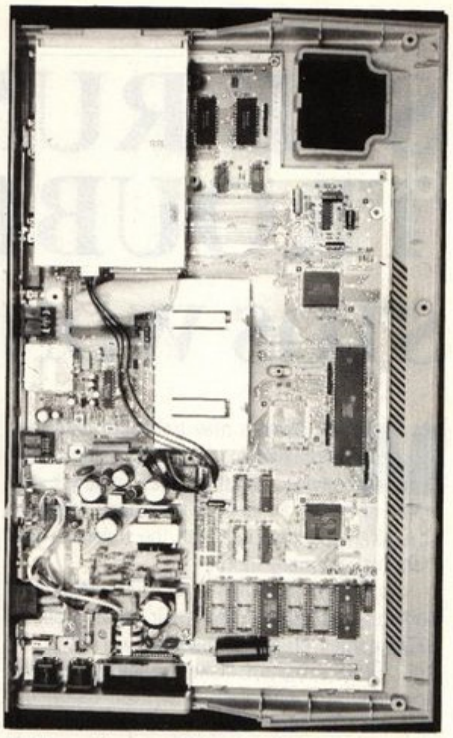
The STACY 1 will be a floppy-based machine with 1Mbyte of valuable RAM memory and should be priced at well under the £1000 mark. All models use a low power CMOS 68000 running at 8MHz, have a full size, full travel keyboard similar to that of the desk bound models and TOS version 1.4 in ROM.

STACY is a portable attracting much interest from industry pundits. The recent release of Apple's financially remote Mac portable has thrown the bargain STACY into sharp relief.

With its ultra-readable super-twist LCD screen, breathtakingly large RAM memory (4Mbytes in the top-of-range computer) and 40Mbyte hard drive, the machine really does live up to Atari's "power without the price" advertising.

The simple addition of one of the many quality Mac emulators, and the machine is a Mac portable for a fraction of the price. The *Spectre GCR* – the latest emulator from HiSoft – with its ability to read and write Mac floppy disks directly, is a perfect foil for the STACY providing complete Macintosh emulation in an Atari-shaped case.

■ The STACY laptop, a new entry-level version, and a fast marketing strategy



■ Upgrade your ST for serious power

UPGRADES FOR EVERYONE

Owners of more recent STs, which have surface-mounted Memory Management Units (MMUs), are experiencing problems upgrading. Ladbroke Computing are now offering to upgrade any ST all the way to 4Mbytes.

Although Frontier Software and Third Coast are both claiming their upgrade kits fit any ST, Ladbroke claim this is impossible and are offering to fit 512K, 2Mbyte and 4Mbyte upgrade boards at prices which depend on which type of ST you own.

Ladbroke are also supplying a kit to upgrade any ST to 2.5Mbyte. The kit costs £60 unpopulated (ie without RAM chips) and £249.99 populated.

Ladbroke Computing can be contacted on 0772 203166.

NEWS IN BRIEF...

■ How would you like to be richer, a better lover and an all round nicer person? Simply buy a PortFolio pocket PC from Atari and all those sought-after attributes could be yours – or so Atari's advertising spiel goes.

Format wonders just how you're going to be richer, when you've just liberated £250 from your bank account to buy the device. Or a better lover, with an unsightly bulge in your pocket made by the PC. And as for being a nicer person, perhaps your fellow travellers might like to dispute that claim, especially after you annoy the hell out of them with the constant tap-tap of your pocket PC's keyboard on the early morning commuter to Paddington.

■ Although the ST is extremely popular in the USA, neighbouring Canada remains strangely reticent when it comes to writing software for the machine. But now, Branch Software of Ontario are about to change all that with their new release *Quick-ST*.

The program acts like a software blitter, speeding up operations such as window and dialogue box plotting, scrolling and so on.

The program uses only 20K of the ST's "valuable RAM memory" (Great Computing Clichés Number One), costs around £15 and can be obtained by contacting Branch Software at PO Box 2624, Station B, Kitchener, Ontario N2H 6N2 Canada. Telephone 0101 519 570 4340.

■ After huge sales of *Replay 4*, the sampling software package, Microdeal have responded to user criticisms of the program by releasing an upgraded version, *Replay Professional*, which offers significant improvements and many new features over the original.

12-bit digital-to-analogue and 8-bit analogue-to-digital converters enhance sound output, as well as digital filtering and fourier transform displays endow the software with everything necessary for the professional musician. Contact Microdeal on 0726 68020.

■ Ladbroke Computing have announced that they are to drop the price of *Midistudio*, the mid sequencing package. Originally priced at £99.99, it will have plummeted drastically to a mere £49.99 by the time you read this. There's never been a better time to to try out the ST's music capabilities. Ladbroke can be contacted on 0772 203166.

■ Sequencer One is a new 32-track sequencer for the ST from the little-known Gajits Music Software. Sequencer One has a resolution of 192 pulses per quarter note, real and step-time recording, a graphic note editor page, a graphic song arranger and all the usual editing facilities (cut, paste, quantize and transpose). Sequencer One will retail for £89. Contact 0202 745744 for more details.

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FUTURE'S SOUND MOVE

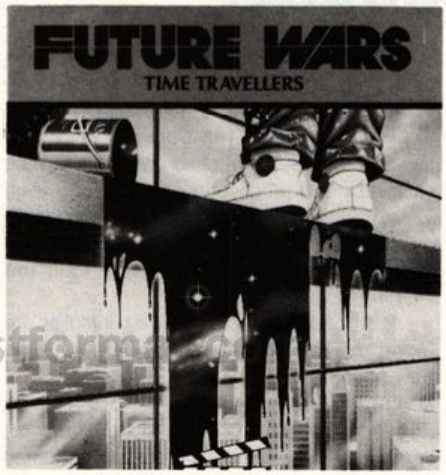
The first piece of software to support the enhanced features of Atari's new STE has now been released. The French-based Delphine Software have made use of the advanced sound capabilities of the STE in their latest adventure, *Future Wars* (we reviewed the straight ST version two months ago).

Future Wars boasts an excellent soundtrack when played on existing STs, but play the game on the STE and the music is greatly enhanced by stereo sound and additional bursts of music. Delphine Software are part of the Delphine record group which handle French musicians such as Richard Clayderman. As such, their commitment to high quality sound is assured. The STE has the kind of musical capabilities which make it easy to use great soundtracks.

Palace Software, UK distributors for the game, didn't even realise the game used the advanced features of the STE: "As far as we're aware, this is the first game to make use of the STE's features," said Pete Stone. "We didn't realise Delphine had made concessions to the STE and only came across it by accident! If we'd known earlier we'd have promoted it more."

■ At the French Tilt D'Or awards, *Future Wars* received two major awards before its release. The game startled everyone by winning best adventure and best soundtrack.

Other games to receive awards were *Populous* (Best strategy), *Silkworm* (Best shoot-'em-up), *Shadow of the Beast* (Best graphics), *Falcon* (Best flight sim), *Kick Off* (Best sports game) and *Strider* (Best arcade conversion).



■ ***Future Wars*, making use of the STE's advanced sound capabilities**

■ ***Total Eclipse*, part of Incentive's Freescape series**

TWO FORCES UNITE

Domark and Incentive are getting together on Incentive's latest game. Incentive are devoting their programming skills to *Castle Master*, while Domark are to use their considerable marketing skills to handle all sales of the game.

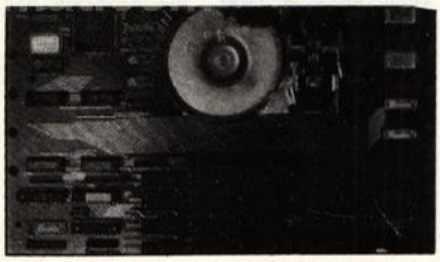
Incentive have previously looked after all their own games in the much praised Freescape series of releases *Driller*, *Total Eclipse* and *Dark Side*. *Castle Master* is set in 16th Century England, with the objective being to rescue a captive princess. The game is set in four towers, with four floors to each tower and four rooms to each floor.

Castle Master is the first action/adventure game to use 3D solid polygons in the Freescape vein, but is said to progress a stage further from existing Freescape titles. Besides a Freescape landscape, the game also features plenty of animation during action events. Domark expect to release *Castle Master* in April.

PARSEC ON THE WAY UP

Elmtech's *Parsec* board, the ST graphics board which adds mammoth graphic capabilities to your ST, has now been upgraded.

The new 8768 board offers true 16-bit colour (ie, every pixel on the screen can be any colour from a palette of 32,768). The *Parsec* upgrade board expands your ST screen to a resolution of 1024 X 768 pixels. Two versions of the board exist – 8768-8 and 8768-16 option. The former only offers 256 on-screen colours from a palette of 16 million.



■ **Elmtech's Parsec board is upgraded**

The lower-end 4768 board is now available for £799, offering a more limited palette of 4096 colours. Upgrades to the 8768 are available for between £199 and £499, depending which version of the board you require.

Elmtech can be contacted on 021 472 5719.

■ **Debby Harry, *ST Format* 5 cover star, is said to be "delighted" for Adam Cresser**

DESKTOP GEM REPLACEMENT

Many owners of the ST choose the machine after seeing the GEM desktop – that wonderful WIMP envirment! But experienced owners know only too well how slow GEM can be. To combat that problem Codehead Software, the software house responsible for the popular *Multifile* desk accessory program, have just released a package which completely replaces the GEM desktop, significantly improving productivity and ease of use.

Maxfile is an upgraded version of *Multifile* which enables users to edit and manipulate up to 80 files on screen at one time. It also provides an increase in the amount of desk accessories available to users (the ST's current limit being six).

Hotwire, the second part of the package, is intended as a direct replacement for the GEM desktop, providing an on-screen clock, password file, protection facilities and an auto-save ledger which keeps a record of the applications you're using most. The programs sell as a package for $49.95 or separately for $34.95 and $24.95 respectively. For an extra $5, Codehead will ship them direct to your door in the UK. Based in Los Angeles, Codehead Software can be contacted on 0101 213 386 5735.

GENLOCK WINNER

The winner of December's delicious GST Gold Genlock competition is ADAM CRESSER of Aberdeen. Unfortunately Debby Harry *(see cover*, ST Format 5) isn't the first prize. Adam has won one of the great Genlocks reviewed in issue 5 and gets the chance to break into the video age on his ST. For the record, Adam's winning 15 word synopsis reads: "I want to win because I don't stand a hope in hell's chance of affording it normally."

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■ ***Omikron Basic:*** **bringing a common language to Europe (sort of)**

GERMAN SCENE

STORY *Don Maple*

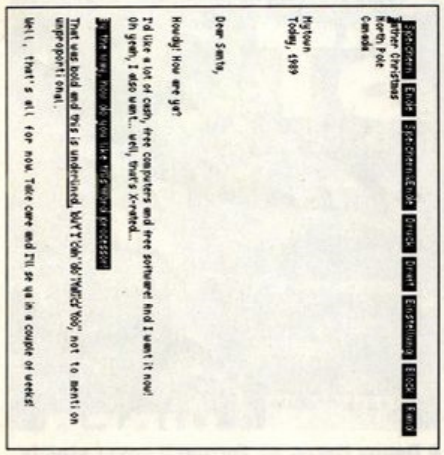
Latest ST news from Germany and around Europe

EUROPEAN COMMUNITY GETS A COMMON LANGUAGE!

The name Omikron may not mean much in the UK, but throughout Europe *Omikron Basic* is shipped as standard with all STs. The only exceptions to this are France and the UK.

Omikron Basic is a 99% superset of Microsoft MBasic. Among almost 300 commands, covering all of the standard Basic keywords, are also various mathematical functions (ARCTAN, SINH, EXP and so on); system variables (MOUSEX, MOUSEY etc); structured programming control commands (REPEAT-UNTIL, WHILE-WEND, PROC); and sequential and random disk file access commands. In addition to interfacing with AES, VDI, GEMDOS, BIOS and XBIOS, it is also capable of limited multitasking.

The program operates on two screens: a comfortable editor screen with menu bar on top and the familiar "OK" run/command screen.



■ **Portrait of an unusual word processor – Omikron's *2nd_Word:* turn your monitor on its side and away you go!**

Omikron support their Basic with two add-ons. *EasyGEM* library (DM 79: about £28), expands the command set to facilitate painless GEM programming. The *Compiler* (179 DM: about £64), takes programs created using the interpreter and produces standalone PRG files. These programs are then not only executable directly from the desktop, but run between two and a massive 27 times faster than the interpreted versions.

Both *Omikron Basic* and the *Compiler* are available in English, while *EasyGEM* is yet to be translated.

■ Another notable Omikron program is *2nd_Word*, a word processor with a difference. In order to run it the monitor has to be turned 90 degrees and laid on its side. The screen then corresponds to the printed page perfectly. Unfortunately the program runs on monochrome monitors only. The resolution of the colour monitors is just not high enough and even on mono the characters are quite small. *2nd_Word* is fully proportional, with lines between 54 and 129 characters long. The font options include bold, underlined, italic, super/sub-script and large. In addition to standard word processing commands, such as block and "search and destroy," *2nd_Word* has automatic hyphenation and enables key redefinition. Mail merge is also possible, and to top it all off the disk contains a program to redefine the character set! In Germany the program retails for DM 59 (about £20).

Carsten Kraus of Omikron tells me *2nd_Word* started life as an *Omikron Basic* demo. It was then used in-house and slowly developed into a standalone product. Omikron (01049 7082 50048) are looking for a British distributor for their products, by the way...

ST FOUND ON MOON

Well, perhaps not the moon. But certainly in an unexpected quarter: Yugoslavia.

STeve – or *ST Event Editor* – is an integrated "everything" program written by Primoz Jakopin that now has over 1,000 users. *STeve* is many things – in fact the reference manual is 600 pages!

Version 3.292 contains a database, DTP, word processor, CAI, image processor (including scanner), spreadsheet, terminal emulation – the list goes on!

The program can be customised with over 30 user modifiable system tables. But despite its complexity, everything is clearly laid out. Interested? Contact Primoz Jakopin, Trnovska 2, 61000, Ljubljana, Yugoslavia (01038 61 226329).

CALAMUS TAKES ANOTHER LEAP

Makers of *Calamus* DMC are now working on version 1.10, due for release in early 1990. Since its introduction at the Düsseldorf Atari Show back in 1988, the program has skyrocketed to become *the* DTP package of choice among ST publishing professionals. Major improvements and additions include full colour separation and colour printer support, new fonts and ability to load various hardware drivers and other programs – particularly interesting since it enables the user to exchange data between *Calamus* and other programs. British distributors of the £400 program (given the thorough *ST Format* treatment in last month's issue) are Signa, who can be contacted on 0252 341600.

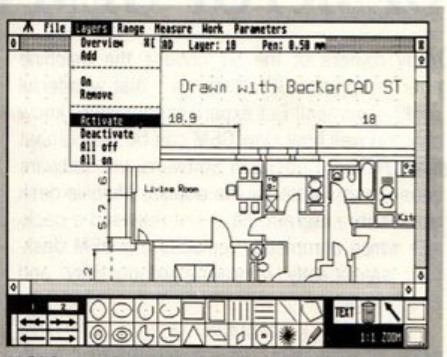
OBJECT LESSON FOR A CAD

The latest Data Becker program, *BeckerCAD ST,* is a professional object oriented drawing program – in other words, it stores drawings as lists of basic geometric objects available from the menu and load complex objects from supplied libraries. The advantage is that the drawing can be enlarged or reduced without loss of resolution. This enables output to ultra-high resolution devices such as plotters.

There are five libraries with electronic, electrical technology, electrical installation, hydraulic/pneumatic and architectural symbols.

Another feature of object oriented drawing is the usage of layers used to simplify a complex object or to represent different slices of the same object. This package allows up to 300 layers in one drawing.

The English version of *BeckerCAD ST* has been released by Abacus, and in the UK it is now available from HB Marketing (0895 441962).



■ **Object oriented drawing package *BeckerCAD ST***

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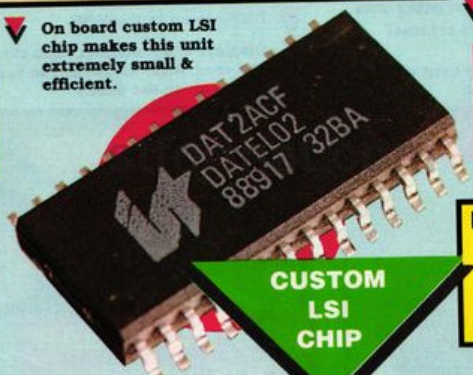

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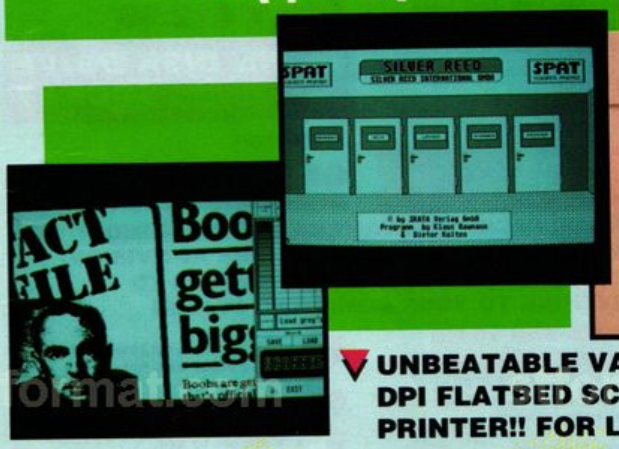

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TOO GOOD TO BE TRUE? WHY NOT BUY ONE AND SEE - YOU WON'T BE DISAPPOINTED!

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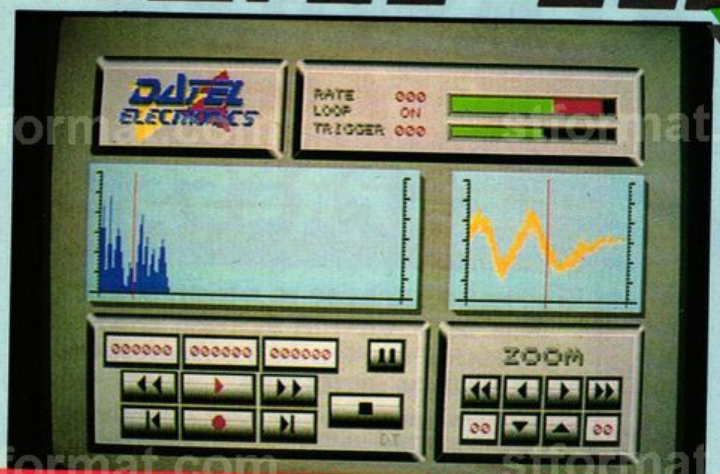

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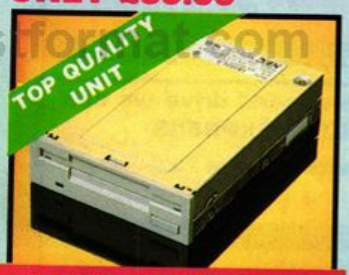

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The dream of colour digitising on the ST becomes reality – and this is only the beginning

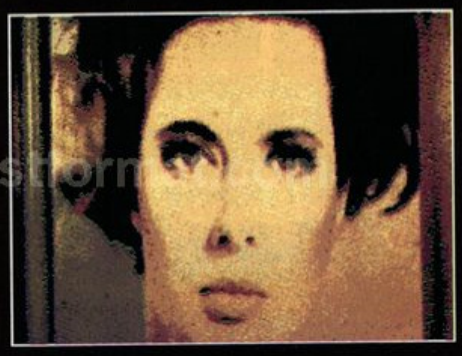
MAKE A COLOUR GRAB FOR IT

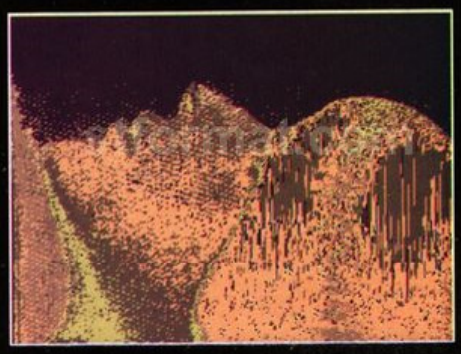
As computers become ever more sophisticated with larger memories, super-fast processors and graphics and sound only dreamed of in the early days of the home micro, design software, animation, paint packages and even games reach new heights of graphic excellence.

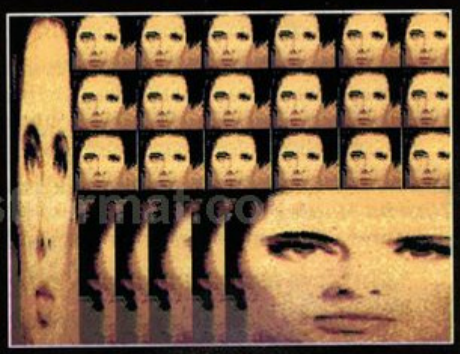
No longer are you regaled with simple vector drawings or animated matchstick people on-screen, but instead almost photographic quality images, in high resolution and colour. Unfortunately the power needed to store and manipulate those images and the equipment needed to capture them was way beyond the means of home users – until now. Latest developments mean that everyone can take part in the exciting arena of video manipulation.

And it *is* an exciting arena. The video digitiser gives you a whole lot more than just another way to take a picture. Capture an image and the door is open for you to process it in dozens of ways. Port a picture into a popular paint package and you can invert, resize and zoom in on detail, colour it using fantastic hues and cut and paste pieces to make a video collage that you can use to illustrate games or create posters and demos.

You've watched favourite bands strutting through their latest video, right? So create your own by using sequences or single grabs from favourite movies and cutting them together with the output from a hired video camera. Use a paint program to make editing and cosmetic changes to individual images, then record the whole thing on blank video tape. With little outlay and lots of enthusiasm, you've just made your first pop promo. ➢







■ Starting with a simple image captured with a video camera, you can port it into one of the popular paint packages (in this instance *Degas*) and use fantastic hues to make that image really eye-catching...

■ Cut and paste functions enable you to do wacky things with ordinary faces. And for an effect worthy of Warhol, copy the image several times to fill the frame, tweak the colours and you have a stunning picture

■ Moving an image smoothly across or down the screen can create a surreal effect which is very pretty. Change to a different colour palette and you have instant 60s Pop Art a la Andy...

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HARD NEWS

The ST has had video digitisers available for quite some time, but none had the ability to record colour images. Most of those on the market were incredibly slow and the resultant pictures less than sparkling – toys for interested parties waiting for something better to come along. Now that "something better" is here.

Third Coast, already a popular supplier of ST peripheral hardware such as scanners and hard drives, has just launched the first full colour video digitiser for the ST. That's right, you can grab signals from a video camera and have an image dripping with glorious technicolour. For the first time, full colour image processing is just a cheque away...

Realtiser

MACHINE: ALL STs

PRICE: £149.99

FROM: THIRD COAST TECHNOLOGIES

CONTACT: 0257 472444

The first colour digitiser, with a claimed digitising speed of between 1/50th and 1/2 a second – and all for the breath-takingly cheap price of £150 – the *Realtiser* offers unmatched specifications for would be ST image manipulators. That's the hard sell, but how does it shape up?

The *Realtiser*, like so many quality and innovative ST products, emanates from Germany. The device takes the form of a cartridge which plugs into the ST's cartridge port. Embedded into the front face of the cartridge is a standard phono jack socket used to connect the *Realtiser* to your chosen video signal. Next to the socket is a potentiometer to tweak if your video recorder or camera is emitting a non-standard bandwidth signal. The *Realtiser* connects to any video able to supply a composite BAS or FBAS video signal.

Many new products, particularly those promising innovative abilities, can be hell to use. Cables that don't fit, software that doesn't behave as it should and a whole host of other problems make their use so difficult as to be almost impossible. Not so with the *Realtiser*. Plug in the cartridge, boot up the accompanying software, slot a video in the recorder and you're up and running. Select Digitise from the Options menu and in half a second, your first digitised picture appears on screen – quick, clean and simple. You don't even have to consult the manual.

That is, until the initial excitement has faded and you begin to see the image on your monitor in, as it were, its true colours. Doubts start to creep in. Maybe you should just cast an eye over the section detailing effective use of the software. So grab a few more images, marvel at their appearance on your screen, then examine the manual to find out how to really get the best results.

SOFT SELL

Realtiser comes complete with the software necessary for image digitising, and a toolbox program which enables you to manipulate captured pictures in ways that are not possible using traditional paint packages such as *Degas*, *NeoChrome* and *Art Director*. The digitising software works in low and high resolutions. Booting up, you're presented with a standard GEM menu bar and a blank screen waiting to receive video input.

From this opening screen you can load previously captured and saved pictures in a variety of formats, select colour tables to apply to incoming signals, or digitise an image. To perform the latter, you pull down the Options menu and select the number of grey scales – from two up to 16 – with which you wish to digitise the image. The former produces high impact stark results, much like a photograph reproduced on a photocopier. By cutting two grey scale pictures with those produced using 16 grey scales or even colour, startling effects are possible.

You've chosen the desired image quality, now by simply clicking on Digitise from the same menu a picture appears on screen. If

■ **Realtiser: the first colour digitiser for the ST**

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you're using two grey scales the picture is captured almost instantly; 16 grey scales and you're waiting for just half a second – it really is that fast. Tried under a range of differing conditions such as changes in brightness, contrast, grey scales and the quality of the videos themselves (Laurel and Hardy movies to the latest music video releases), the *Realtiser* always matched its claims of fast grabbing. There's also an option which enables you to grab whole sequences of video action, stopping at any point by pressing the escape key. Using this feature, creating animated videos is simple.

When you've captured the desired frames or sequences, *Realtiser* offers saving to disk in several formats including *Degas, NeoChrome, Art Director, Doodle* and the bit image .IMG. This feature makes it very easy to import digitised grabs into your favourite paint package for later manipulation. You can change colours, cut and paste selected portions of the image, stretch, rotate and add text for captioning.

If you want to add some pazazz to the grabs while still resident in the digitising software, the Pic-ops menu enables you to invert shading (black becomes white and vice-versa), make the image appear as if viewed in a mirror, or zoom in and out on selected detail. And when you're finished tinkering, the print menu offers support for Epson, C-itoh, even HP Laser-jet. You can also rescale the x or y axis to get the images to fit the paper width.

KALEIDOSCOPE COLOURS

In the box alongside the *Realtiser* cartridge are red, green and blue filters. To grab a colour image, cover the lens of a video camera attached to *Realtiser* with the red filter, flag red in the grab menu and take a picture. Repeat using the green and blue filters, and after a little jiggery-pokery with the clever software, a colour picture emerges! The clever part is that you can reproduce colour images, *even if you only have access to a monochrome camera!*

By storing three separate pictures of red, green and blue, then combining them relative to the intensities of their respective hues, a colour image is produced. This works in a similar way to the domestic colour television set where phosphor dots of red, green and blue are stimulated according to the intensity of the primary colours of the original image, reproducing with matched colours. Best results are with static subjects. If the image changes between grabs, the software can't join the trio of colour pictures correctly and a blurred, poor quality picture is the outcome.

If the camera is mounted on a baseboard (wooden base with a bracket to hold the camera set at a right angle from this base), with spotlights to bring out the best in the subject, high quality pictures emerge. Although using filters and taking three separate images is a little messy, in practice it works well and has the advantage of enabling you to make use of the cheaper monochrome camera.

VERDICT

The *Realtiser* is a usable piece of kit that can produce colour and mono images which, while certainly not of professional standard, enable users to enter the exciting playground of image processing in colour. Results depend a good deal on finding the right mixture of light and shade in the source material, and it must be said that working with a baseboard with spotlights and a steady bracket gives considerably better results than with a video on pause.

Both hardware and software are simple to set up and easy to use. A minor moan is that the *Realtiser* does not come with a cable to connect the cartridge to your video camera or recorder. Although this is just a simple phono to phono or BNC cable, it's annoying to have to trek out to your local hi-fi store just when you were settling down to produce the definitive music video.

Tha manual accompanying *Realtiser* is not exactly an er, *quality* product but does explain everything in fairly easy to assimilate text, and there are example pictures and menus illustrating the more esoteric points of the hardware.

The *Realtiser* is just the first of what promises to be a new avenue of exploration for ST owners. Plans are afoot to market a video digitiser complete with an RGB splitter, effectively negating the need for tinted filters when grabbing colour images. With the aid of a colour video camera or even a standard video recorder, you'll be able to grab frames in real-time, simply dripping with technicolour.

You do, of course, need access to a video recorder or camera. If you don't own either of these expensive items, it's possible to hire them for periods from one evening to weeks, months or years. Typical costs are £6 to £10 per evening for a video recorder and around £25 for a colour video camera for a weekend. Either device provides the signals necessary for *Realtiser* to do its stuff, although the camera – if you can afford it – is the best option.

If you want to make music and promo videos, or have fun as a video jockey, the darling of the digitisers, then a cost-effective solution is to use both, the recorder for the bulk of the work and the camera for short, high quality sequences. The secret is to shop around, experiment and above all, have fun!

For those with enthusiasm and cash the *Realtiser* opens image processing doors you didn't know existed. ■

FORMAT RATINGS

Features 80%
Comprehensive software and filters included in the package

Speed 90%
Grabs are very fast under all conditions

Ease of Use 65%
Fairly easy to use, although the filters are a little messy

Results 60%
Grabs are of reasonable quality. Best results are achieved with a video camera

Format Value 85%
Priced the same as many of the monochrome digitisers

The Competition
There is no competition. The *Realtiser* is the only full colour digitiser on the market. However, plans are afoot to upgrade several of the other devices to colour in the near future

DIGITISING ON THE ST: THE OPTIONS

- **Although *Realtiser* is the first colour digitiser there are many others which grab monochrome images at a cheaper price.**
- **If your sense of visual aesthetics lies firmly in the days of monochrome melodrama, then these are ideal for you.**
- **Check out the specs to see which suits your pocket and purpose...**

NAME	Price	RAM required	Screen resolution	Colour	Grey scales	Sequences	Supplier
Computereyes	**£149.99**	**.5Mbyte**	**Low/High**	**No**	**16**	**Yes**	**Third Coast (0257 472444)**
Realtiser	£149.99[1]	.5Mbyte	Low/High	Yes	16	Yes	Third Coast (0257 472444)
SAM	**£249.95**	**.5Mbyte**	**Low/High**	**No**	**16**	**Yes**	**Start Systems (0304 369364)**
Turbodiser	£149	.5Mbyte	Low/High	No	16	Yes	Software Express (021 328 3585)
VIDI-ST	**£99.95**	**.5MByte**	**Low/High**	**No[2]**	**16**	**Yes**	**Rombo (0506 414631)**

[1] There is also a black and white version at £99.99 [2] Colour add-on soon

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- ***Myth.*** Written by Magnetic Scrolls, authors of The Pawn, exclusively for members of Official Secrets. Myth is a small adventure set in Ancient Greece. In it you'll meet The Ferryman, cheat Death and face the nine-headed Hydra. Myth includes the famous Magnetic Scrolls parser and graphics and is included in the price of membership.
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MOULD THE FRONT PAGE

STORY *Simon Williams*

Drum up advertising flyers, newsletters, reports and book manuscripts using your ST and a Desktop Publishing package.* Format *starts a new series on the techniques of DTP with a look at what's available

Desktop Publishing (DTP) is an increasingly important application thoughout the micro world, and the ST is well up the field in its page layout abilities. It has a well-designed screen (and a good mono monitor), a fast processor and access to top quality output devices such as the Atari laser printer. It is also well endowed with text processing and DTP software. There's a full range from PD and budget applications like *Easy Text* and *Easy Text Plus*, to mid-range offerings like *Timeworks DTP*, *PageStream* and *Fleet Street Publisher* to top-end professional programs like Signa's *Calamus*.

So why should you shell out 400 big ones for *Calamus* when *Easy Text Plus* costs a twentieth of that? And what can you do with *Fleet Street Publisher* that you can't with *Timeworks?* What should you be looking for?

THE BASICS

There are some things that any DTP should be able to do. Without these features you'll be hard put to do any sensible page make-up. You must be able to create frames to hold text or graphics and put them anywhere on the screen. You should also be able to realign them once they're filled. There should be at least two fonts available in several sizes (contrary to some popular opinion, you don't need tens of typefaces to produce a good DTP page. In fact the more fonts you're tempted to use the scrappier your page is likely to become).

You should be able to resize graphics and edit text in the frames. This is essential for fitting the various elements of the page into a cohesive whole. It's a pain to have to refer back to a separate text editor or word processor every time you want to remove a few ill-placed words. Some DTPs use a text editor built into the application. This is acceptable, but not as convenient as editing text directly in a frame. The only exception to this is when working with a small font size, which may not be completely legible in the limited resolution of the screen.

Elementary line drawing should also be incorporated so that you can divide columns or box out important sections of text. Printing should cover at least 9 pin and 24 pin printers.

The PD version of *Easy Text*, supplied on last month's Cover Disk, offers most of the features just outlined. It has limits to the size of frames it can open and prints by dumping what's on the screen. The fully-fledged *Easy Text Plus*, a budget commercial version of the same program, overcomes both of these restrictions, but still has some problems with formatting text – there's no word-wrap within frames – and can't flow text from one frame to another. Still, for single page documents and at £20 it offers exceptional value.

THE EXTRAS

Once you have the basics covered, you can begin to select the other features you need to complete the particular documents you have in mind. These include flowing text from frame to frame and from page to page, paragraph styles, master pages and hyphenation.

Being able to import text and let it flow from frame to frame is fundamental if you intend to produce documents of more than one

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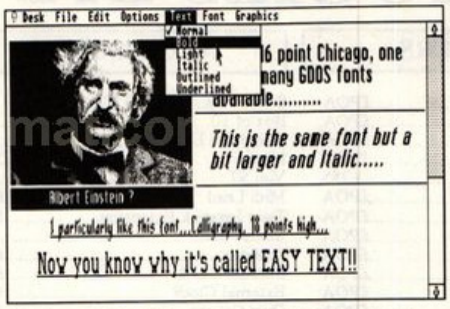
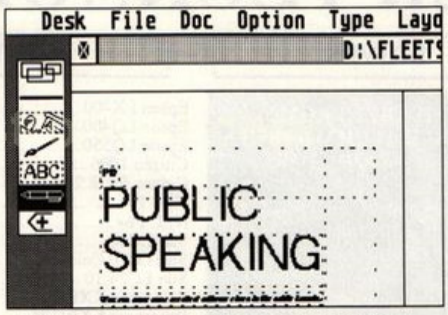


■ ***Easy Text*** **offers a clear work screen, but to some extent this reflects the facilities offered by this low-cost option**



■ ***Fleet Street Publisher*** **is altogether a more sophisticated beast, as can be seen by a quick glance at its works screen**

page. If you have to insert text into each frame in turn, or worse have to copy sections of it from a "clipboard," it's at best frustrating and at worst prohibitive.

Paragraph styles let you set up specific font sizes, styles and text spacing and assign them names. You can then apply them automatically to any paragraphs in your text. This is a much more efficient way of formatting a document and allows you to make document-wide changes to text by simply altering the characteristics of the style applied to it.

Master pages work in a similar way to paragraph styles, but affect the layout of the page as a whole. You can insert repeating text, page numbers and default text and graphic frames, which are then applied from the masters to each "real" page in the document.

Hyphenation is a step beyond automatic word-wrap, splitting words within a frame so that they break at syllable boundaries within a word. This avoids excessively uneven line lengths when working in unjustified, narrow columns.

Timeworks DTP, PageStream and *Fleet Street Publisher* all offer these features. The aspects you should use to select between them are specific to each program. *PageStream*, for instance, can flow text directly around graphics rather than just around the containing frame; it can rotate and slant both text and graphics; and it can group frames together to move them as one around the page.

Fleet Street Publisher III can search and replace like a good word processor and change character attributes (such as type styles) as well. It also includes a 120,000 word spelling checker and numerous high quality fonts. The Ultrascript add-on lets you produce PostScript files, which can be printed on high-resolution photo-typesetters as well as laser and dot-matrix printers.

THE EXTRA EXTRAS

Most home and semi-professional uses of DTP can probably be catered for by any of the three programs just mentioned. There are applications, though – and these mainly fall into the professional sphere of use – where you need your DTP to pull out all the stops and produce some very special effects or handle text in a particularly sophisticated way.

At this level, when you're interested in page design up to publicly publishable standards, things such as a fully fledged, integrated word processor, font rotation and direct import of scanned images become important. The mighty *Calamus* can do all these things and much more besides.

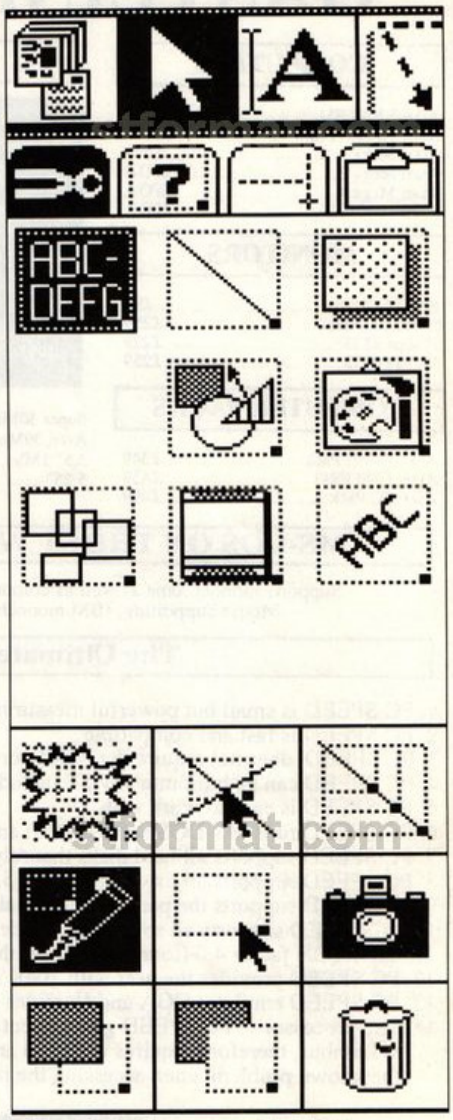
It also comes with high quality fonts which are created on screen from outlines, as they are on the printer. This gives them exceptionally good form, which, combined with the program's typographical control, can be used to produce high quality type.

THE CHOICE

As always you should not be swayed by the technology. If you don't need the facilities of a heavyweight like *Calamus*, you should seriously think about one of the cheaper choices. The saving could mean you can afford extra peripherals, such as a hand scanner or a mono monitor.

Remember that DTP is much better displayed on the square pixelled mono ST monitor, and that *Calamus* has no colour mode.

■ **In next month's tutorial we start to look at the simple page design of an advertising flyer. We'll be using *Timeworks DTP* as the basis of the tutorial – see the special offer on page 144 if you're considering adding a DTP package to your software stable.**



■ **Top of the league must be *Calamus*, which uses a heirarchical tree of icons to control its bewildering array of features**

PRODUCT DETAILS

Easy Text Plus ■ £20
zzSoft (0422) 845528
Timeworks DTP ■ £99
GST (0480) 496660
PageStream ■ £171.35
Silica Shop 01 309 1111
Fleet Street Publisher III ■ £199
Mirrorsoft 01 928 1454
Calamus ■ £399
Signa (0252) 341600

JARGON KILLERS

One of the most forbidding aspects of the DTP field is its dreadful addiction to jargon. Keep this list to hand and you need never feel inadequate when reading a DTP article again:

BULLET: a symbol, usually a dot (•), square (■) or star (*), used to emphasise a sentence or paragraph

CROPPING: trimming an image to alter the content and/or to get it to fit a set frame size

FONT: a set of characters of a particular typeface and in a given style and size

FRAME: a window on a DTP page, similar to the file windows on the GEM desktop

JUSTIFY: short for "fully justified," it means text aligned at both ends of each line

KERNING: the space between characters in a piece of text

LASERJET: a laser printer by Hewlett Packard, or a clone of it, which incorporates a simple page description language called PCL

LEADING: the horizontal space between lines in a piece of text

MASTER PAGE: a special page incorporating layout features and text which automatically repeats through a complete document

PARAGRAPH STYLE: a set of font and spacing settings which can be assigned a name and applied to paragraphs of text

POSTSCRIPT: a page description language used to produce text and graphics at any size

SCALING: changing the size of a graphic image to fit a set frame size

TYPEFACE: a given design of type, e.g. Swiss, Dutch, Times, Helvetica

TYPE STYLE: an effect applied to a font, e.g. emboldening, italic, drop shadow, outline

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What the Press says.....

Guardian - *"It seemed to work well, and ran Dos software (in 704K of memory) at a reasonable speed" - Thursday, 6th Oct 1989.*

ST Format - *"A hard act to follow" - Nov 1989*

ST World - *"It took Germany by storm" - Nov 1989*

Popular Computing Weekly - *"PC speed is capable of out performing an 80286 band PC when fitted to a 1040ST" - Oct 5th 1989.*

Micro-Mart - *"There has been a lot of interest in it" Issue 100*

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ST FORMAT COVER DISK

Side A

■ **SKATE TRIBE** – fantastic freewheeling fun. This is not a demo: it's a *complete game!* Nine levels of skateboarding nuttiness
■ **VIRUS DIE** – prepare for a new concept: Sector 9's totally rad virus killer! Forget boring text displays, we're talking animated sequences showing viruses having their £$%&! chopped off! *Plus...*
■ **PLAYBACK** ■ **C PROGRAM** ■ **DESKTOP**

Side B

■ **ANIMATION** – two stunning *Cyber* animations
■ **4PAK** – an incredible new file compactor
■ **RESTORE** – return colours to default values
■ **ART GALLERY** – a brace of stonking *Spectrum 512* images
■ **CONVERT** – change binary data into ASCII
■ **F40 DEMO** – a mere 35K, but a tremendous Ferrari F40 and more besides!

The diet-destroying and overwhelmingly delicious *ST Format* Cover Disk packs in over 800K of terrific demos, games and utilities. Not all 520ST owners, however, are fortunate enough to have double sided drives. So a special format disk is used that can be read by both single sided *and* double sided drives. Of course, single sided drives can only access the top side of the disk.

That nice Rob Northen has produced the latest format which allows everyone to access the rather tremendous *Skate Tribe* complete game (details below) and all the goodies on side A.

Double sided owners get a double hit with all the amazing demos on side A as well as the unbelievable utilities on side B.

To get at side B – assuming, that is, you have a double sided drive! – simply double click on the folder SIDE_2.

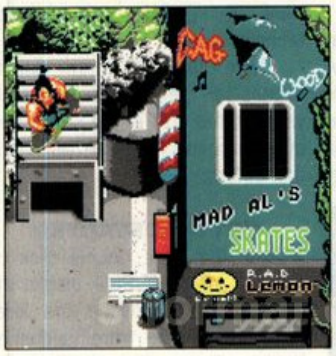
If you have a single sided drive, you'll see a box with the rather alarming news that there's an error on the disk. But worry not, nor fret, for the data is *not* damaged – it's just a consequence of the format. Just click on CANCEL and rest easy. All shall be well and all manner of thing shall be well.

Do remember though, *you won't be able to access anything on side B if you have a single sided drive.*

One more thing: BACK UP YOUR COVER DISK!

SKATE TRIBE

BY: MANDARIN
SIDE: A
MACHINE: ALL COLOUR STs
FILES: SKATES.PRG, SKATES.JMW (folder)



■ (left) Go Apache Joe, go! (below) Strut your stuff and polish your skater speak. Let's see some bio. I wanna see aerials, handplants and ollies. And let me at the Betties *(what the hell is this guy on? – ed)*

Here's a first. A complete game on the Cover Disk. Yes, the whole thing – not just a level or two, but the whole game!

Communication between your home town and the supply post has been cut.

Only you, Apache Joe, have the skill and bravery to negotiate the hazards before you. You must save your people by reaching the supply post.

You begin your race at Wood Green, hidden home of the Skate Tribe, with the bare essentials: a board with wheels.

The game consists of nine levels. Completing a level results in two prizes being awarded. Each prize affects the way in which your skateboard moves. Bonuses are available on levels, but going for them generally means steering into trouble and then trying to get back out again.

Levels mean prizes. And these are the prizes you'll be awarded the further you get in the game:

■ Turbo wheels are great for long, non-winding routes. Once activated, speeds of up to 80mph can be reached.

■ High-tensile base plates are made from the toughest metals and will absorb the shocks and pressures of tough rides without affecting speed.

■ Reinforced Canadian mutant maple board give you a machine that will never break no matter what you hit.

■ Electrostatic power glide rails allows magnetic induction of electricity from close contact with any metal.

■ Airboard lets you surf on the wind.

■ Hydrobombs can be launched at high-flying mutants (ninja turtles?).

■ Grind-X trucks allow positive steering even on the toughest ground.

GETTING STARTED

You can run *Skate Tribe* by double clicking on SKATES.PRG from the root directory. All you need is a joystick in port 2 and an itchy trigger finger. Let's have a good, clean skate.

DON'T BE DUMB! BACK UP YOUR COVER DISK **NOW!** How? **See page 28**

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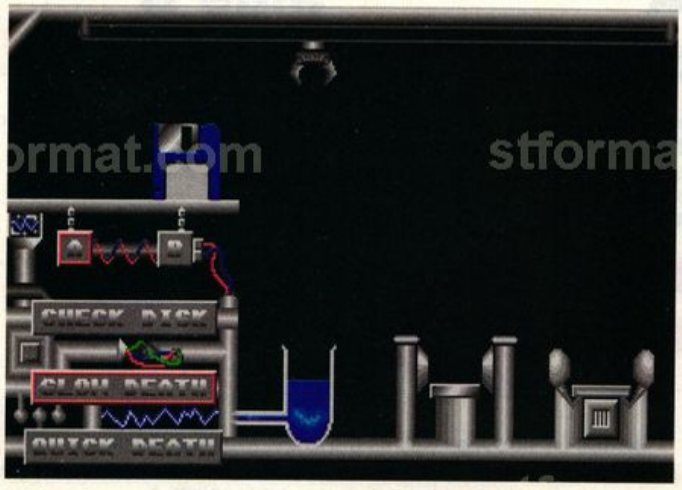


■ **Frazzle, you sucker. That's the last disk *you're* ever going to infect!**

■ **Push the button and say goobye. Ohhh yeah, it only takes a second to say goodbye**

Virus Die

BY: SECTOR 9
SIDE: A
MACHINE: ALL COLOUR STs
FILES: INTROII.BNK, KILLER, MOUSE.BNK, VIRUS, VIRUSDIE.DOC, VIRUSDIE.PRG, VIRUSII.BNK

WARNING

Do not use this virus killer on commercial software – you could corrupt your disks. Use only on standard ST formatted disks. *ST Format* cannot under any circumstances be held responsible for data lost or spoiled because you ignored this warning!

Same old story. Disk with virus in one hand and disk with virus killer in the other hand. Put virus killer in drive. Run. Remove virus killer disk. Put virus infected disk in drive. But message doesn't read virus dead. Instead, music and flashing graphics. This thing's alive – and I'm not talking about the virus. What a great virus killer. It's interesting; it keeps you occupied; it even lets you determine how the virus is to die. And it lets you dish out the death-dealing blow!

Virus killing is no longer a passive occupation. Now it's up to you to determine how the virus filth die. There's nothing better than seeing a virus struggling to break free moments before being bombarded by a pulse of high voltage electricity. Ahmmm, this is one blood sport you're going to enjoy.

If a virus is found to be lurking on your disk, a steel vice wrenches it from its hiding place. Now it's your turn. You can move the grabber and deposit the virus in a suitably nasty place.

Pressing the HELP key runs through the killing animation without disk access. Useful if there are no viruses around and you want to practice your killing techniques.

Note that all three deaths scenes for the virus kill the actual virus on the disk in the same way, of course; it's only the animation that differs.

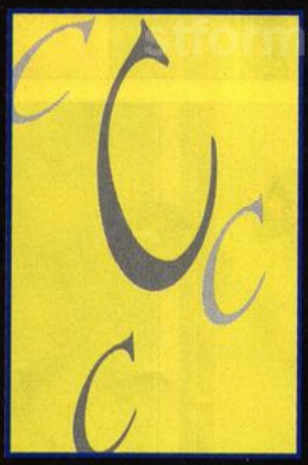
GETTING STARTED

To load the Killer, double click on the file VIRUSDIE.PRG inside the VIRUSDIE folder. Once the killer has loaded, the intro sequence begins. Press the joystick fire button to start. A menu appears on screen. Moving the joystick moves a pointer on the menu; fire selects an item under the pointer.

"PROGRAM IN C" – SERIES

BY: WARWICK GRIGG
SIDE: A
MACHINE: ALL STs
MACHINE: EXAMPLE1.C, README.DOC

Here's the first source file from Warwick Grigg's C tutorial, which begins this month on page 97. Virtually any Kernigan and Ritchie compatible C compiler accepts the source. (See that tutorial, page 97, for a full explanation.) The source file can be found in the C_SERIES folder.



```
1   /* Example1.c : Prints the number of vowels in a word
*/
2   R#include "stdio.h"
3   int vcount;     /* Declare a variable of type integer
called
4                   "vcount" */
5   main()     /* Program starts here ! */
```

■ **Gibberish? Start learning C right now – see page 97**

Playback

BY: TRISTRAN HUNTING
SIDE: A
MACHINE: ALL STs
FILES: DEMO.TOS, FASTBAS.BSC, GFABAS.BAS, MGUN.SND, PLAYBACK.C, PLAYBACK.DOC, PLAYBACK.S, PLAYBACK.SND, STBAS.BAS

Fed up of sound samples that are only played on the title screens of ST games? It's really annoying that most games lack any in-game samples. Whaddayamean it ain't possible? With Tristan's program it is. Playback is an interrupt-driven sound sample player. As Playback doesn't hog the ST's processor, other things can be done while digitised data is played.

Tunes or sound effects can be added to games and, indeed, any software.

Replay rate is restricted between 1 and 16kHz. Samples of any format can be played back providing you know the sample rate and length.

GFA BASIC, Fast BASIC, ST BASIC, C and Assembler source code for playing samples under interrupt is present on the disk. For a full guide on how to use individual source files, consult the comprehensive documentation file on the disk.

GETTING STARTED

Inside the PLAYBACK folder you'll find a collection of source files. Make sure you read PLAYBACK.DOC before doing anything. Load the appropriate source file into the language of your choice. Alternatively double click on DEMO.TOS.

Desktop tips

BY: VICTOR KIRBY
SIDE: A
MACHINE: ALL COLOUR STs
FILES: PARALAX3.BAS, XSCROLL.BAS, README.DOC

It can be done. It is possible. Horizontal and parallax scrolling can be achieved from within the STOS game creator. And to prove it Victor Kirby has written a couple of short routines demonstrating the facts. Full details of these routines can be found in the Desktop section on page 69. You'll need the STOS interpreter to run the BASIC programs. These can be found inside the DESKTOP folder. ➢

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New Products

Lattice C 5

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Lattice C version 5 is already highly acclaimed on the Amiga, where the package outshines all its rivals. Now we have ported this powerful package on to the Atari ST and added features that make it simply irrestible.

- Generates the fastest code of all ST C compilers ... bar none (including the infamous Turbo C).
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Lattice C 5 is a brand-new product (*not related to version 3!*) which gives you a totally professional programming environment together with exceptionally fast code ... and all at the bargain introductory price of **£99.95** inclusive!

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KnifeST can edit many disks that can be physically read on the ST e.g. those of the Archimedes and Sinclair QL and can also read entire tracks, including sync bytes and track address fields.You can even run other programs from within KnifeST. Comes complete with a 64 page manual full of information and help on ST disks and costs £29.95 inclusive.

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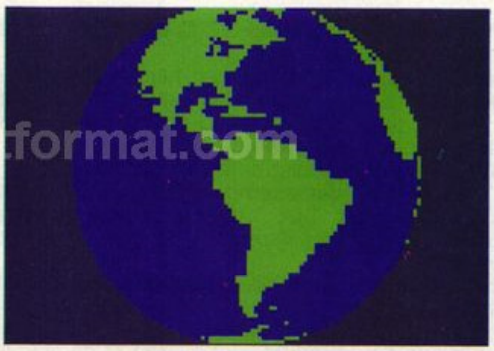
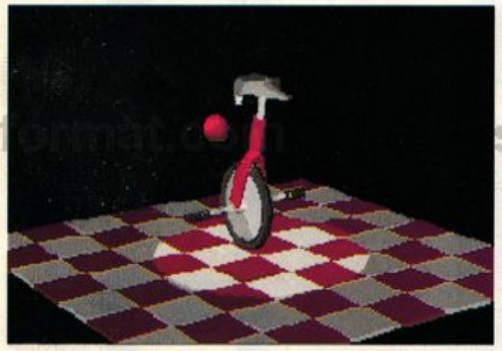
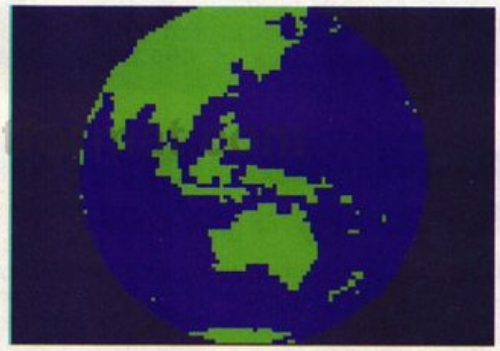

■ (left) This superb animation from Patrick Kerr shows a unicyclist juggling and then bowing when he finishes his performance. Excellent stuff! And on the right is a taste of Mark "The Pix" Pickavance's *Cyber* tutorial (see page 103)

Animations

BY: MARK PICKAVANCE, PATRICK KERR
SIDE: B
MACHINE: ALL COLOUR STs
FILES: UNICYCLE.SEQ, WORLD.SEQ, ANIMATE4.PRG, ANIMATE4.DOC.

Any excuse to print a few pretty pictures! This month we have two excuses. The *Cyber* animations are pretty and one of them ties in with Mark Pickavance's graphics tutorial on page 103.

To get to the ANIMATE folder first double-click on the SIDE_2 folder. Inside the ANIMATE folder are UNICYCLE.SEQ, WORLD.SEQ, ANIMATE4.PRG and ANIMATE4.DOC. The UNICYCLE.SEQ animation is from Patrick Kerr and shows what can be done on the ST when a little time and effort is put into the design.

WORLD.SEQ goes with Mark Pickavance's *Cyber* tutorial on page 103. Full details about how he created it can be found there.

The program to view the animation SEQ files, ANIMATE4.PRG, has been dealt with extensively in the past. And it makes a regular appearance almost every month. The version of ANIMATE4 on this month's disk is no different from other versions that have appeared, but it is much smaller: 4PAK (see below), the file compressor, did the job.

There's a comprehensive documentation file on the disk (ANIMATE4.DOC) if you get stuck using ANIMATE4.

Convert

BY: CHRIS GREENING
SIDE: B
MACHINE: ALL STs
FILES: CONVERT.PRG, CONVERT.DOC

This program converts (hence its title, I guess) a binary data file into an ASCII file that can be imported into any assembler. It changes binary data into ASCII bytes, words or longs and put dc.b, dc.w or dc.l at the beginning of each line.

Inside the SIDE_2 folder is the CONVERT folder, and inside the CONVERT folder you'll find CONVERT.PRG. To use the program follow the prompts that appear on the screen. Simply supply a file to convert and an output file when prompted.

4pak

BY: PUBLIC DOMAIN
SIDE: B
MACHINE: ALL STs
FILES: 4PAK.DOC, 4PAK.TOS

Yes, we have published a file compactor in the past, but compared to the efficiency of 4PAK it's dismal. And the screen doesn't flash and wobble when a file is decompacting.

Not only is 4PAK very good at crunching files, but the speed at which it decompresses is phenomenal – you won't even notice a pause. Compressing can take several minutes, but the results are so worthwhile.

Only PRG and TOS files can be squeezed. Some GEM programs have odd or technically incorrect headers – 4PAK won't touch these. Generally, though, the number of dropouts is few.

GETTING STARTED

This is when things get tricky. First, double click on the SIDE_2 folder. Next double click on the 4PAK folder. Finally, double click on 4PAK.TOS to start the file compactor. Type in the name of the file you wish to compress when prompted. The file to be crunched must end in PRG or TOS. Supply a different name for the output (compressed) file.

Art gallery

BY: PUBLIC DOMAIN
SIDE: B
MACHINE: ALL COLOUR STs
FILES: APPLES.SPC, NIMSCOP7.PSC, README.DOC, SLIDES.PRG

You're in for a treat when you see the two pictures in this month's GALLERY folder. Both are stunning Spectrum 512 pictures – and both use all 512 colours available on the ST. Run SLIDES.PRG inside the GALLERY folder (itself being inside the SIDE_2 folder), to view the pictures. Click on Show All Pictures and then select drive A from the menu that appears. Finally click on OK to start. Press Undo to quit.

Restore

BY: JAMES BESWICK
SIDE: B
MACHINE: ALL STs
FILES: RESTORE.ACC, RESTORE.DAT, RESTORE.DOC

You've probably encountered some programs that mess the system colours after doing whatever they were paid to do. This can be very frustrating indeed, since it makes everything left on screen very difficult to see. Banish the blues forever with James' utility. Restore simply returns all the screen colours to their default values. All resolutions (including mono) are catered for.

GETTING STARTED

\RESTORE.ACC can be found in the RESTORE folder, which is itself ➤

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TO B-SIDE OR NOT TO B-SIDE

You single sided drive owners don't have to miss out: get hold of the B side by sending your name and address with a cheque or postal order for £1.75 to:

February B-Side Disk, *ST Format*, Beauford Court, 30 Monmouth St, Bath, Avon BA1 2AP

inside the SIDE_2 folder. As it stands, RESTORE is in accessory format (ACC). It can, however, be can used as a GEM program (PRG). It's up to you to decide how you want to use the program. You must rename RESTORE.ACC to RESTORE.PRG if you wish to run the program from the GEM Desktop. Do this by highlighting RESTORE.ACC and clicking on Info in the File menu.

Unlike standard .PRG or .TOS files, Desktop accessories (recognisable by their .ACC extensions) can't be executed by double-clicking on their file names. Instead, GEM must be given instructions to load them at start up. Accessory files must be present in the root or main directory so that GEM can find them. Once installed, an accessory is run by pulling down the Desk menu and clicking on the accessory's name.

Restore is a desk accessory, so just copy the file RESTORE.ACC to the root directory of your boot disk. Boot up your ST by hitting the reset button and you will find something extra in your Desk menu.

F40 demo

BY: JEAN-MICHEL TREGUER
SIDE: B
MACHINE: ALL COLOUR STs
FILES: F40DEMO.PRG, F40DEMO.DO

Here's a demo from JMT displaying a great Ferrari F40 with an undulating reflection of the car and several ferrari logos whizzing around the screen. There's sound, too.

Run the demo by double clicking on F40DEMO.PRG. You'll find the F40DEMO folder inside the SIDE_2 folder. Press space when you've had all the Ferrari you can take! ■

Number something in an occasional series

READING DOCUMENTATION FILES

In virtually every folder on the Cover Disk you'll find a file with the extension .DOC. This is a help file and contains instructions of using the program. Ensure you read all help files before running any program.

To read a help file (or .DOC file) simply double-click on the file. Click on CANCEL if you don't wish to read the file; click on PRINT to send the document to a printer; click on SCREEN to send the text to your monitor. After each screenful of text the display will halt. Pressing return will scroll you up a line while pressing space will scroll up a complete page of text. Pressing Q or Control C will return you to the Desktop.

Future Publishing CANNOT be held responsible for improper use of any programs on the Cover Disk. Basically, if you wreck your disk collection because you failed to read a help file, it's tough. Your problem, etc etc. Be sensible and you won't have any troubles.

Next: how to lose weight instantly with the ST Format *"Bacon Slicer Diet"*

BACK UP YOUR DISK!

Because the fabulous *ST Format* Cover Disk is non-standard and squeezes in an astonishing 400K of data per side, the back up procedure is not simple. Follow these steps carefully, though, and you won't encounter any problems. Do it any other way and you could knacker your Cover Disk.

1. **Format a couple of blank disks – single sided if you've got a single sided drive, double sided if you have a double sided drive.**
2. **Write protect the Cover Disk and insert it into drive A (if you have two drives, you lucky devil, insert the Cover Disk into drive B). Double-click on the drive B icon. If you're still saving up to buy a second drive, a message appears requesting you to put disk B in drive A. Simply click on OK.**
3. **Insert a freshly formatted disk into drive A. Double-click on the drive A icon.**
4. **Pick up a folder at a time from the Cover Disk window and plonk it into the drive A window.**
5. **If you have one drive then you'll be asked to insert disk A and disk B at regular intervals. Don't mix the two up! Disk B is the Cover Disk and disk A is the freshly formatted disk.**
6. **When you get a "disk full" error message, recopy the last folder – and subsequent folders – onto the second freshly formatted disk.**
7. **Double sided owners, double-click on SIDE_2 once you've finished copying all the folders from side A of the Cover Disk. Job done!**

FAULTY DISK?

In any disk duplication run as massive as *ST Format*, it's possible that a minuscule proportion of the disks might be faulty. If you're unlucky, sorry. You're guaranteed a working replacement, however, if you send your corrupted disk to:

ST FORMAT
February disk returns, Discopy Labs Unit A, West March, London Rd, Daventry, Northants NN11 4NA

DO NOT SEND YOUR DISK TO ANY OTHER ADDRESS OR YOU WON'T GET IT REPLACED

THE DISK NEEDS YOU!

We need *your* software – games, utilities, demos, anything good, original and preferably short. If you've written anything worthy of the ST Format Cover Disk (and remember, it's the ones we reject that makes ours the best), send it with this form and full documentation to: Richard Monteiro, *ST Format* Cover Disk Editor, 71 Barn Glebe, Trowbridge, Wiltshire, BA14 7JZ. Allow four weeks for a reply.

NAME _____
ADDRESS _____
_____ **DAYTIME 'PHONE** _____
PROGRAM TITLE _____
SIZE OF FILES IN K _____
WHAT'S SO BRILLIANT ABOUT IT: _____
_____
_____

Don't forget to: ■ Enclose an SAE ■ Include on-disk and paper documentation ■ Write your name and address on the disk ■ Use a virus-free disk ■ Wear some clothes when you go shopping

Please sign the following declaration: This program is submitted for publication in *ST Format*. It is wholly my own work and I agree to indemnify Future Publishing against any legal action should copyright problems arise.

Signed _____

Note: we pay out *up to* £800 for contributions to our Cover Disk. But to earn that kind of dosh, of course, you'd have to write something pretty spectacular, original and complex.

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WELCOME TO THE BEST IN ST ENTERTAINMENT

SCREENPLAY

We're well into the new decade and already there are indications of the special ingredients that are set to transform ST games. Without a doubt the two-player, two-screen mode is one of them. We investigate (page 58), and reveal that its enormous potential is already being realised. After three years in the pipeline, *Iron Lord* finally arrives (see page 44) – and for once good gameplay is not losing out to great visuals. Among other highlights this month: *Gates of Jambala* (page 35), *Chase HQ* (page 46), *Beach Volley* (page 49) and *Time* (page 50).

■ Issue five's Cover Disk blasts its way onto your screen – *Untouchables*, (page 46)

■ Travel with us through *Time*, Empire's exciting new release (page 50)

■ *Iron Lord* struts his metal stuff (page 44)

THE *ST FORMAT* RATINGS SYSTEM

GRAPHICS
The ST is capable of some superb graphics and animation: the last thing you want is crummy 8-bit graphics with tiny sprites and jerky movement. The graphics rating takes both still and moving graphics into account.

SOUND
Your ST holds the power to output some great audio effects – not just sampled music but also some pretty nifty tunes using the sound chip. One thing which doesn't go down well with our experts is the notorious beep.

INTELLIGENCE
Some games you can just pick up and play: if you've seen half a dozen vertical-scrolling shoot-'em-ups you know what to expect. Other games, however, take some thought to play. Look out for a high score here if you like your games brainy.

INSTANT APPEAL
If there are 1,001 instructions to read before you can even boot up then it's hardly instantly playable. You need to be able to shove the disk in, pick up your joystick and play for lots of instant appeal.

LONG-TERM INTEREST
Here we measure the appeal of a game after several hours play. Combine this and the previous score to find out how long a game needs working at to appreciate its finer points.

OVERALL
Taking all the above into consideration and comparing it with recent similar games, we award a percentage score. Remember though that ST games are becoming better all the time so a game rated Format Gold a year ago may well no longer warrant such a score now.

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OCEAN

CHASE HQ

£19.99

Hard Drivin' appears in the arcades and suddenly drivin' games are comin' out all over the shop proclaimin' "state of the art." At least Taito's offering gives the budding speed freak a little more than the usual "race to the next checkpoint" format, presenting you with a task to complete before the timer runs out.

Chase HQ takes place in a Los Angeles of serious crime and psychotic individuals. You're head of the Special Criminal Investigations (SCI) branch of the LAPD, known locally as "Chase" (SCI, LAPD= Chase? Sure, it figures!). You must hunt down and apprehend perpetrators (or "perps" as they're known to the police) as they attempt to get away from the clutches of the boys (and girls) in blue.

As the game gets going you're cruising for a bruising in your Porsche 928, on the lookout for trouble. Suddenly a message comes through from Nancy at Chase headquarters: a perp ('scuse me) is attempting to escape the city in a powerful sports car. Information on the vehicle flashes across the in-car computer screen, the locator latches onto the car's position and away you screech.

The locator counts down the distance as you approach your quarry and informs you of the shortest possible route by pointing in the appropriate direction when splits in the road occur. To help you catch up to the escaping car in time you have three turbo boosts to give a short burst of super-fast acceleration.

One point you have to remember is that even though you're the police and in hot pursuit, you ain't the only vehicle on the road! Steering round cars gives you extra points, the bonus increasing the more cars you pass safely. Hitting an innocent driver, however, knocks the bonus counter back to the minimum value of 200 points.

Once those nasty baddies are in sight their car is highlighted and extra time is added to the clock. Now you must power on and smash them off the road – that's the only sort of contact these people understand. Eventually they pull over allowing you to arrest them and get ready to accept another call fom Nancy.

There are five missions to complete, each trickier than the last – so git them tyres aburnin'!

■ The start of the game and Nancy gives you your mission

■ Take the right turns or you'll never catch the perps

EFFECTS

Unfortunately *Chase's* graphics and sound don't quite capture the spirit of the original. The sampled speech is still there but a host of weak effects have been implemented as well. Most noticeable of all, however, is the annoying sqeaky whine of the siren as you close in on the villains, which has even those of us with the most toughened eardrums reaching for the volume control.

On the visual front things aren't so bad. The car graphics are a little on the small side and the parallax backdrops have been lost, but the 3D perspective is fast enough – not in the range of *Hard Drivin'*, but still effective. Fans of the original will be pleased to hear that all the presentation points such as the video-link intro and the arrest screens have been included, albeit in a slightly distorted form.

In general the presentation of the game has been competently carried out, but the whole thing somehow lacks the polish of the original coin-op.

VERDICT

On first sight, *Chase HQ* gives the impression of being, er, not *quite* up to the mark. Play it, though, and you find a playable game lurking in there somewhere.

The feel of the car is tricky to start with but once you've worked out how to stop yourself flying off the outside of every other bend, the steering has a comfortable feel to it. Occasionally, especially in the tunnels, the car drifts off to the edges of the track, but with careful

■ There they are! Now to ram them off the road!

■ Altogether now, "You have the right to remain silent..."

■ Misjudged that bend! Getting into the tunnel will be hard now

■ Safely in the tunnel, but not much time to catch the crooks

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■ **Oh dear, out of time. Nothing to do but trudge back to headquarters with a sheepish grin**

■ **Leaving the tunnel at top speed with your quarry in sight. It's amazing what a bit of extra time can do!**

steering even this setback can be overcome.

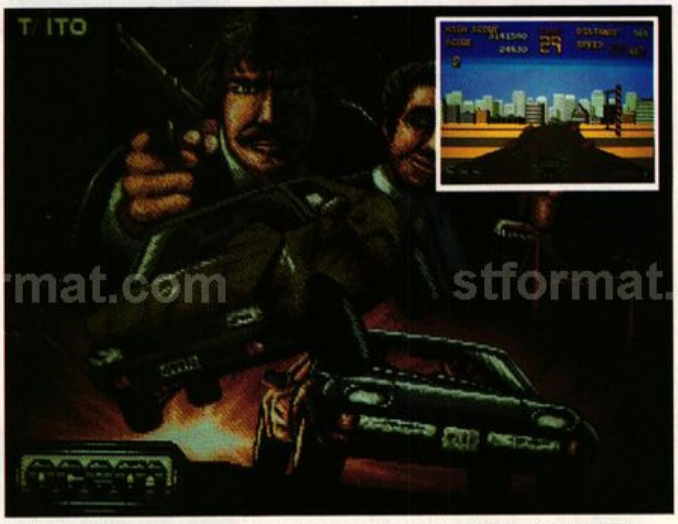
Once stage one has lulled you into a false sense of security, the going on subsequent levels gets incredibly tough and use of the three credits provided is almost essential to get anywhere.

The only setback is that once you get to grips with the controls and methods of beating the criminals, it won't be that long before you complete all five stages, and once you've finished the game it's doubtful that repeating the arrests can keep its hold on you for long – unless you harbour secret law and order fantasies. Despite this, and the fact that the look isn't quite up to the arcade version, it's still a playable conversion that should please followers of the original.

MAFF EVANS

GRAPHICS	6
SOUNDTRACK	4
INTELLIGENCE	5
INSTANT APPEAL	7
LONG TERM INTEREST	6
OVERALL	**71%**

■ **Hammering through the city with a turn up ahead. Follow the arrow for the shortest route**



■ **Don't these characters look suspiciously familiar? Agh! Who put that rock there?**

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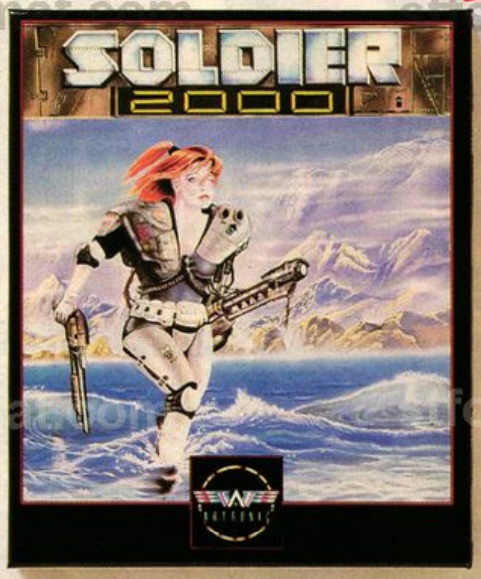

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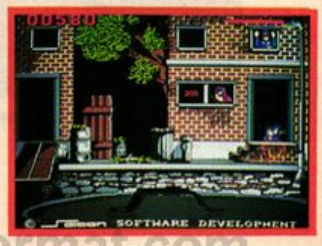

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■ In the town street. Pick up the key...

■ ... carry on until you find the appropriate door...

■ ... a quick knock and you enter the underworld

GRANDSLAM

THE SEVEN GATES OF JAMBALA

■ Insects abound on level one. Watch out! Here comes a wasp

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The one thing that Davion wants the mostest in the whole wide world is his stripes as a Fully Fledged Wizard. For the past few years he's been the keen student of the Old Master. But just occasionally the path to wizardry doesn't run as smoothly as it might. The Old Master has had to reprimand him a number of times for misusing spells or causing problems with some of his own!

But this time the young student has really blown it and wasted his last chance. During the casting of the biggest spell the Old Master has ever incanted, Davion activated a lever which ruined the effects. As a punishment the Old Master has sent him into the realm of Jambala – a strange world of ghostly cities and mysterious underground caverns. Few people attempt to enter the realm of Jambala, and fewer still escape.

There is only one hope for the apprentice and that is to find the seven pieces of the missing magic wand and use them on the exit gate in the seventh city.

The *Seven Gates of Jambala* takes up the tale as Davion enters the first city. Guide him into the correct passage via the appropriate doorway on the street. Once inside, negotiate the tricky scenery while fending off all manner of nasty subterranian creatures on your search for pieces of the missing magic wand.

Throughout the passages there are doors and behind them various beings lurk intent on relieving you of your money. Some offer weapons, while others proffer information – not all of it useful.

To get to the next city Davion must destroy a creature at the end of one of the passages with his current magic weapon, which can range from a shower of magic dust, through lightning bolts to fireballs.

Once the seventh guardian is dead Davion must assemble the pieces of the wand in the correct order to open the last gate and return home.

■ Attacking the monster at the end of level two while dodging his bombs

■ Kill the nasty green demon at the end of the passage to finish level one

EFFECTS

Despite a relatively large playing screen, the scrolling in *Seven Gates of Jambala* is commendably smooth, proving that good results can be achieved with sufficient effort.

The same care has been taken throughout the game to create a slickly presented platform game, from the acrobatic credit screen to the jolly end sequence. The sprites, using colour to good effect, are small but perfectly formed and are animated every bit as smoothly as the atmospheric backgrounds.

The sound gets off to a cracking start with a superb haunting tune to back the Thalion loading screen, and continues in a similar Jean Michel Jarre vein during the game. The accompanying spot effects aren't quite as impressive as their musical counterparts, but they fit well enough and don't clutter the proceedings.

The message to programmers is clear: so there are no custom chips – work around what you've got instead of using it as an excuse!

VERDICT

In spite of its similarities to *Ghouls 'n' Ghosts*, Thalion have managed to inject *Jambala* with more of a "magical" twist, rather than the ghastly spectre feel of Capcom's gem. As enjoyable as it is bouncing across the scenery casting spells and killing creatures, if you want to finish the game you have to pay close attention to the monsters behind the doors. Heeding the advice they give is essential, rather than merrily zooming along to the end of the level and blasting the monster to bits. This stretches the old cerebral cells more than similar games and extends *Jambala's* lasting appeal.

Even if you romp straight to the last level after a few goes, you still have to keep playing to get the clues you need to finish the game.

There are plenty of additional extras hidden within the game such as treasure rooms, secret passages and invisible scenery to tax even veteran arcade adventurers, but it's still not too difficult for newcomers to join in the fun.

If you enjoy games such as *Wonderboy* and *Mario Bros*, then you'll probably get an enormous amount of fun from *Jambala*, but even if you're not familiar with these games, it's still worth investigating.

MAFF EVANS

GRAPHICS	8
SOUNDTRACK	7
INTELLIGENCE	5
INSTANT APPEAL	8
LONG TERM INTEREST	7
OVERALL	**78%**

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■ A nicely drawn screen to show your next destination on your worldwide bombing raid

■ The hills of Northern France, and the enemy don't seem to be putting up much defence

■ Ah, spoke too soon! Here come the hun! Dakakakakaka!

FIREBIRD

P-47 THUNDERBOLT

£24.99

Following in tried and tested footsteps, *P-47 Thunderbolt* is a horizontally-scrolling, weapon-collecting, shoot-'em-up. This time, instead of taking place around some desolate moon in the distant reaches of the Galaxy the game has a very earth-bound theme.

The *Republic P-47 Thunderbolt* was a heavy-duty American fighter plane used during the early part of World War II for short-range bombing raids over Northern France. The plane was later fitted with "drop tanks" to allow for the extra fuel necessary for longer missions.

In Firebird's latest release you find yourself in the cockpit of this celebrated fighting plane taking part in a variety of long-distance attack raids – from the greenery of Northern France to the dusty plains of Africa. Your attack squadron is huge – there's just two of you!

You and your brave compatriot have to inflict as much damage as possible while fighting off hoardes of enemy planes, tanks and helicopters in an attempt to reach the humungous end of level baddie. This foe must be destroyed before you're cleared to fly off and attack another area.

You're initially armed with simple front-firing machine guns, but destroying carrier helicopters occasionally reveals extra weapons such as bombs, missiles, directable fire and spray cannons to help deal even more death to the dastardly Hun.

As you'd expect, Jerry doesn't take a thrashing too kindly and sets up his troops quickly after a raid. So even if you do manage to blast your way through all eight attack stages, you must return to blast them again.

EFFECTS

Sadly *P-47* suffers from chronic sound effects. The tunes are dreadful and soon become infuriating. The spot effects are as unrealistic as a three foot cardboard cut-out of St. Paul's Cathedral. You're highly reccomended to play the game with sound staying well and truly off.

The graphics are a different matter altogether. Firebird have captured the feel of the coin-op's graphics to a tee, even down to the loading screens. One can't help being impressed by the incredibly smooth parallax scrolling and the sheer number of sprites moving about the screen has to be seen to be believed. After the disappointingly tiny train in stage one, the end of level enemies become bigger and more detailed, but thankfully with no loss of quality in animation.

Occasionally the scaling of various sprites is a little askew, but even that doesn't detract from the game's overall stylish appearance. Another example of what can be achieved with scrolling and animation on the ST if you put your mind to it – it's just a shame the grotty sound lets it down!

VERDICT

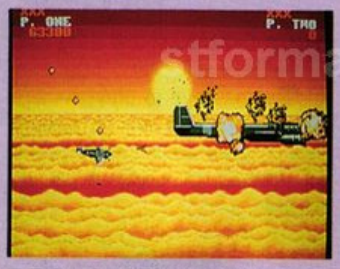
Even though *P-47* doesn't really offer anything innovative to experienced shoot-'em-up players, it's surprisingly good fun to play. The going is extremely tough right from the outset, throwing you in at the deep end with pea-shooter guns to fight off tanks. Once you've learned the first few attack patterns and picked up a couple of weapons, you soon get into the swing of things and blast away with the best of them.

The Jaleco original of *P-47* proved popular with blast freaks, and Firebird have done an excellent job in converting it to the ST. The arcade version wasn't the best game ever, so the home version doesn't break any boundaries. It presents you with a simple shoot-'em-up that's enjoyable but lacking the lasting interest required of a classic blast.

MAFF EVANS

GRAPHICS	8
SOUNDTRACK	2
INTELLIGENCE	2
INSTANT APPEAL	7
LONG TERM INTEREST	4
OVERALL	**67%**

■ Fighting the enemy as the sun sets in the distance



■ Take that! The end of level plane dies in flames

■ Across to Africa, where the battle is even more fierce

■ Dear me! That's a large tank. It's brown jumpsuit time!

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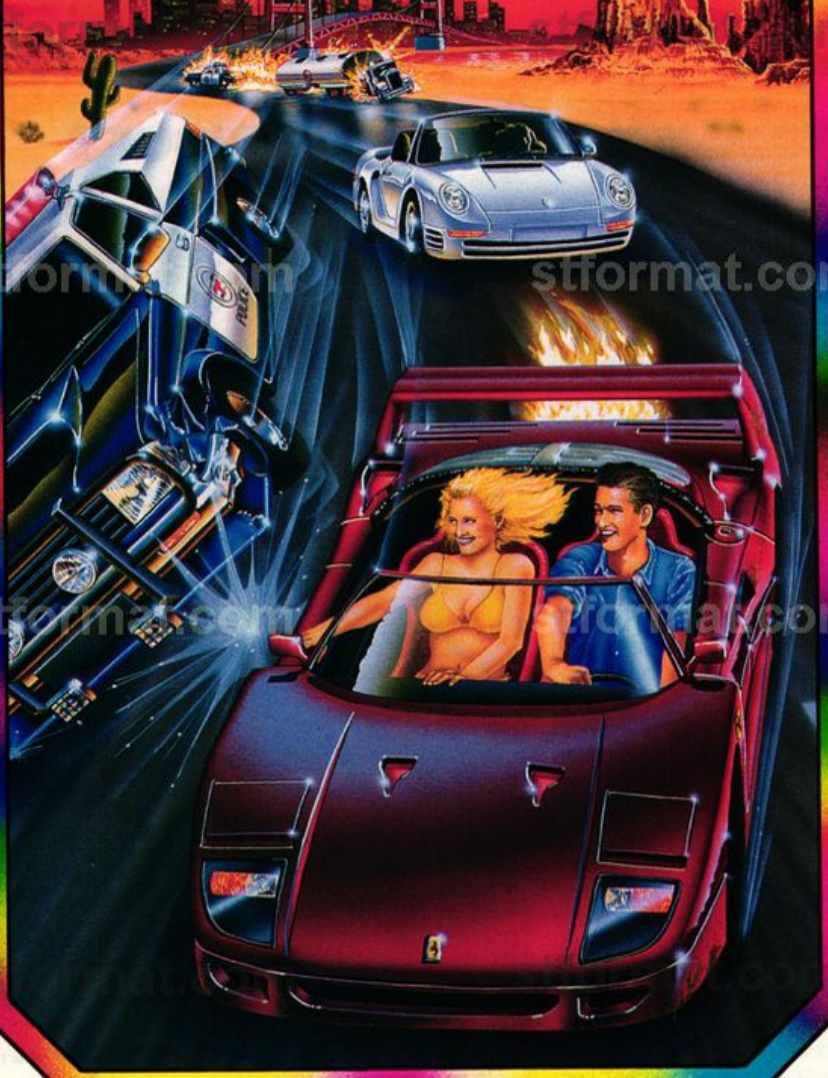

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UBISOFT
TWIN WORLD
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This month has seen very nearly enough horizontally-scrolling action games to swamp the ubiquitous Christmas car releases. *Twin World* is the latest to follow the *Ghouls 'n' Ghosts* lead.

You play a little elf out for revenge for his father's death. The objective is to progress through a long sequence of progressively harder levels, piecing together sections of an amulet as you go.

In the quest your elf comes up against numerous monsters. But he's no wimp, no sirree. Hit the fire button and this elf fires one of his three available weapons. It's been known for weaponry to run out, but you encounter so many extra weapon bonuses that it happens very infrequently.

All levels feature these bonus icons: some disappear after a few moments and others are hidden under blocks. To pick them up you move your elvin hero over the icons, which can involve leaping skyward. The majority of icons up your score, but there are some special ones to collect, including springs to help you leap higher, extra lives and keys to locked doors.

Door and cave entrances take you into a cave, where you have more monsters to defeat and more icons to collect. The caves are horizontally-scrolling as well, and can often take you back into daylight, many steps forward from where you descended.

It's essential to explore caves, because somewhere inside they contain the entrance to the next level. Another trick you might try is to stamp your foot, Violet Elizabeth Bott-like, on the ground. This often knocks the bricks away, replacing them with bonus icons.

Up on the ground, the same act punches a hole through the ground into other levels. But be warned: it's easy to go mad and start knocking everything away in a destructive frenzy, creating a wall in front of you which, without other blocks to help you climb to the top, you'll never get over. If the situation becomes totally helpless, you can press [Esc] on the keyboard and you'll lose a life, re-emerging somewhere else in the level.

■ You see the opening to a cave and, because you're dying for a peek, you venture in

■ But the going isn't all that good. You get inside and it's straight into confrontation with the green head

■ Pick up the amulet – there's one for each level

■ Pick up the key if you want to get through doors later on

■ You'll be in trouble later if you don't kill the three heads of the monster

■ When they split up it's hard. There goes one head – two more to go

■ The head fires these missiles which are fast and tough to dodge

EFFECTS

Horizontally-scrolling games are ten a penny at the moment, so they have to be strong in the graphics department. When you see the backdrops you're bound to be impressed, but it's the animation of the elf which is the best. If he's running in one direction and you switch to move in the opposite direction, he doesn't just bolt round the other way, he skids forwards, stops and spins round. At other points, he turns and looks at you with a big grin (reminding me of the cute shrug Indie Jones had).

It's a shame that the same amount of effort couldn't have been extended to the monsters – don't the programmers realise you can actually have animated sprites in 16-bit games? A few movements of a jaw and a flying bat are hardly state-of-the-art stuff.

Take time out of the game to notice the scrolling and you'll be less than whelmed. It jerks in leaps of about a quarter width of the screen instead of scrolling smoothly, so you can be standing right next to a monster and not realise it.

Ubisoft have put lots of effort into the sound. A brilliant sampled intro is the curtain-raiser to a host of musical effects. You can choose to play the game to jaunty background music, with or without spot effects.

Most of the sound is sampled; that which isn't has a polished, professional feel to it which stops it being just another boring sound chip event.

VERDICT

It takes thought to make a hackneyed theme original, and the game lacks that special something to set it apart from the crowd.

Load it and, though the sprites look small, it's an instantly playable game. Unfortunately the lack of different enemy sprites means there's a dull consistency to the gameplay.

One level looks much like another, so that once the novelty factor fades you're left with little to stretch your attention span past the first few hours. Despite the old saying, simply having your elf is not enough.

MARK HIGHAM

GRAPHICS	7
SOUNDTRACK	8
INTELLIGENCE	1
INSTANT APPEAL	9
LONG TERM INTEREST	4
OVERALL	**69%**

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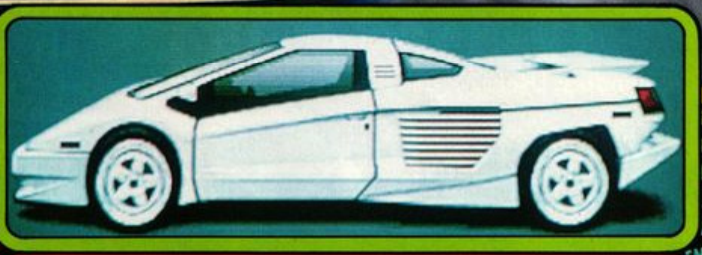
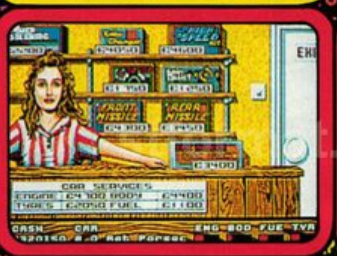
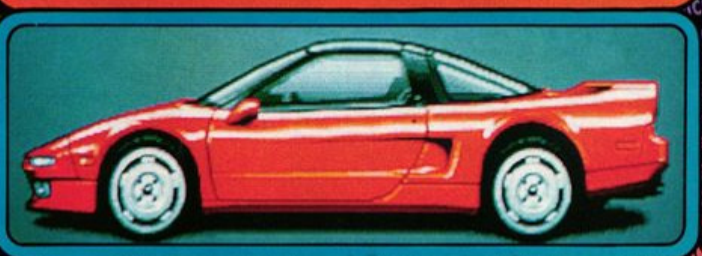
Screen shots from Amiga version.







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ACTIVISION

GHOSTBUSTERS II

£19.99

Though it topped the charts, the original *Ghostbusters* game was hardly a great programming achievement. Never mind: a successful film guaranteed a sequel, and now Activision get a second bite of the slime cherry.

The three levels of *Ghostbusters II* have been assembled from three major sequences of the film and pit you against the ghosts in a ventilation shaft, inside the Statue of Liberty and in a museum: only by completing one level successfully can you move on to the next.

In level one you're a Ghostbuster hanging around (literally) in a shaft and trying to collect a slime sample from the bottom. You've been winched down the shaft on a long cable, which wouldn't be so bad – if only the walls weren't pulsating with ghosts.

In the weapons department you have a Proton laser which gives you the chance to nuke the ghouls, but often not before they've damaged you. Unfortunately this laser appears to have extremely dodgy batteries, so use it sparingly. Mind you, you also have PKR bombs and shields that you pick up from the side of the shaft by swinging towards the wall and touching them with your feet, so the situation isn't too desperate.

■ Being a Ghostbuster is all about catching bad ghosts but watch out: get touched and it's curtains

■ That ghostly finger over your head is gradually cutting the wire

■ You fail to kill the ghost with your Proton laser, and fall down the shaft

You can pick up courage this way too, and the Ghostbusters certainly need lots of that to survive. Whenever you're hit by a ghost your courage level drops; run out and you lose one of your three lives.

By level two the Ghostbusters have traced the source of evil to a museum, and for some reason never satisfactorily explained in the scenario they must get there before New Year. But the museum is encased in an inpenetrable shell, and their wacky solution is to fill the Statue of Liberty with slime and take it to the museum. (Why? Wotcher mean, *why?*)

■ Each fireball you toss loses valuable slime. Lose too much and you perish

■ Believe it or not you're inside the Statue of Liberty. Use the fireballs to crush the advancing ghosts

The statue can move because it's been filled with slime, but every time it's hit by an unpatriotic ghost the slime reserves decrease. To protect the statue in all its glory hurl fireballs at the ghosts – but remember that going on the offensive also uses up valuable slime.

You've probably realised by now that this level is all about amassing a large portion of slime, which can be collected by giving the ghosts a good blasting and gathering the droplets of slime left behind when they die.

The museum is the final level, and here you take control of all the Ghostbusters to rescue Oscar the baby and destroy Vigo the Carpathian.

The level kicks off with the Ghostbusters abseiling in through the roof. Once you've overcome the obstacle of how to land without breaking your neck, it's up to you to find a demon hidden inside a painting.

This painting is indicated by a baby suspended in front of it, and you need to grab the baby before the Demon enters its body. Fortunately, various weapons are on hand to help out as you direct the four Ghostbusters around the museum.

EFFECTS

The game's biggest strength is undoubtably its massive sprites. Whatever *Ghostbusters II* may lack in playability, at least none of its problems stem from the visuals. From the ghost-infested shaft right through to the museum, the graphics are well defined, effectively drawn and beautifully animated to conform to the Ghostbusters' wacky world.

The game opens with the maddeningly hummable Ghostbusters theme – magically digitised to lull your ears into an appreciative state before the so-so standard ST spot sound effects arrive.

VERDICT

Ghostbusters II: stunning visuals, snore inducing plot. There's much potential in a licence such as this, and programming team Fours Field have worked hard to try and better the last *Ghostbusters* effort.

Sadly, playability is, if anything, even worse. The game may have an instant attraction, but it doesn't last. The three levels quickly become tedious through lack of variation – it's just a monotonous case of ghostblasters. Players expect extra excitement at the end of a level, and the occasional big bad guy wouldn't have gone amiss. I'd guess that the game's fans will be limited to those who most enjoyed the film. A great opportunity missed. **MARK HIGHAM**

GRAPHICS	7
SOUNDTRACK	7
INTELLIGENCE	2
INSTANT APPEAL	6
LONG TERM INTEREST	1
OVERALL	**62%**

Map of the village | Static graphic of village | Message window

■ You're at the front gate of the village, preparing for action. Things don't remain tranquil for long

■ Use the map to decide where to go. Head off on horseback and the adventure begins

UBISOFT

IRON LORD

£24.99

Rumours of the imminent arrival of *Iron Lord* have been rife for what seems like decades. Last Christmas previews and adverts appeared, but after a couple of months everything went quiet again. Now, at last, it's here – but has the delay proved fatal?

Iron Lord, it was said, would be one of the great all-time adventures, and it's certainly had an eventful history. After mammoth programming problems last year, it's been delayed so long and so often that we started to wonder if it had slipped out on the quiet. When it was previewed at the PC Show, for the first time in '87 and then again in '88, it was the graphics that wowed everyone. But since then there have been so many graphically superior games, that challenging gameplay has, thank goodness, come back into fashion.

The objective is the usual hackneyed stuff: assemble an army and do battle against your evil uncle, etc. Most of the game is decided on a full-screen map featuring castles, villages and abbeys, linked by roads. You begin in a centrally-located castle. Using the joystick to move a hand around the screen, you click on a place to visit. If it's next along the road, in either direction, a knight rides his horse there.

Once you're inside the village, the screen clears and a small map appears in one top corner. Here you see a four-directional scrolling view of the buildings, trees and walls in the area. You move a tiny dot of a knight around these, discovering what's going on and where. By stepping up to the front door of a house and pressing fire, you get information from the occupant, stumble upon a shop or even find yourself in a game of archery.

Iron Lord doesn't just pit good against evil, though. As you stumble across people, they're given distinctive characteristics, heightened by a half-screen picture of them. For example, some characters warn you about others and a message bar under the map gives advice on who's behind the door.

It doesn't matter who you meet, you're always given the option to talk or buy goods from them. Buying goods brings up a list of the things available – if any. The objects for sale depend on the place you're visiting. Going to the herbalist brings up a long list of herbal medicines, while the shopkeeper gives you just about anything – for a price. Since the whole point of your mission is to trade for soldiers, many of the items are used to buy men for your army.

Conversing with people is simple: two arrows let you run through possible sentences and by clicking on them you issue the question and the character answers. You then either reply or leave. This gives you the feeling of participating in a conversation.

Several action sequences liven up the game, the first of which is the archery scene. You're presented with three icons to control the height, direction and force of your shot. If you don't hit the target

■ As you move, the message window gives you help on where to go next

■ You follow the advice and end up at the herbalist's place

■ You can buy the items listed or talk to a herbalist

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■ Under attack from an assassin who pounces as you leave a village. It's a life or death struggle (inset). Death tends to win

■ Winning the final battle takes skill and strategy. This is all about moving your troops into safe areas to survive attack

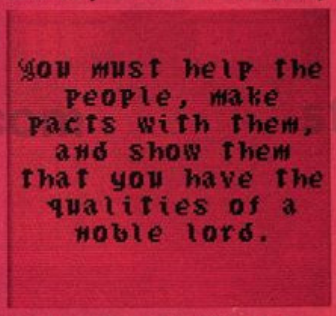
you're shown how far off you were. If you do hit it, you see a close-up of the target to determine how far off-centre you were.

In the gambling hall action sequence you can take part in an arm-wrestle, play dice or buy alcohol. Try arm-wrestling and you must beat nine opponents separately by waggling your joystick from left to right as fast as you can. If you need to replenish your gold reserves you can risk playing dice. Choose the stake for all the players and then throw. Get a seven and you keep the kitty, less than that and you lose, more than that and you keep your stake.

As you leave the villages you risk attack from an assassin. If you get caught, you compete in a life or death bout of fencing, arcade style. Win and you can carry on, lose and you die.

When you have at least one regiment, you can go to the central tower of the castle and enter the final battle. This section is divided into turns. In your turn, you have six moves to shift or join your troops. By rushing onto the same ground as your enemy, you cry for war. The key to this section is spreading your troops out.

Win here and you're through to the labyrinth where you have six levels of a maze and must find the exit for each level. In between levels you compete in a simple arcade phase where you kill acid-bearing monsters to get to the top of the labyrinth.



■ Your powers of conversation are astounding. Here you chat with one of the village characters, gaining valuable information about troops you can collect

EFFECTS

Few games have had such effort put into graphics. Though the majority are static, they add a great deal of atmosphere to the game. It's a shame that otherwise faultless graphics have been let down by a tiny window showing an overhead view of villages as you wander around. If this area weren't central to the game, you could imagine it had been added at the last minute.

The action sequences are great fun, with fabulous visuals keeping it exciting. But it's rare for there to be much animation on screen at once, so it's never edge-of-the-seat stuff.

As with Ubisoft's other release this month, *Twin World*, sound is absolutely brilliant. There's plenty of music and neat spot effects all over the place to keep things aurally interesting.

VERDICT

The instant you see *Iron Lord* you recognise something of the Cinemaware style. In fact, it looks unnervingly similar to *Lords of the Rising Sun* (currently on a machine called the Amiga, but due soon for the ST).

With essentially three levels of action – gathering troops on the map, going into battle and getting lost in the labyrinth, there's plenty to do. But somehow they don't hang together terrribly well, and by the time you get as far as the labyrinth all credibility in the characters and plot is lost by the strange monsters. Even though the plot has found a way to justify them, they never really belong in *Iron Lord*.

Nevertheless, it's a game bulging with interest. When you're bored with gathering troops, you can go into battle; get fed up with this and you're into the labyrinth. If you die before completing the mission you can go back and put more effort into building a bigger army.

Had *Iron Lord* been released a year or two ago the graphics alone would have guaranteed its success, but now there needs to be much more to a game. *Iron Lord* has it. And even though it follows where Cinemaware went first, there's no way you could say it lacked originality. With three very different and long-lasting levels, you'll be well impressed.

MARK HIGHAM

GRAPHICS	9
SOUNDTRACK	7
INTELLIGENCE	8
INSTANT APPEAL	8
LONG TERM INTEREST	9
OVERALL	**90%**

■ The archery fight. Using icons work out how you want to fire your arrow

■ You missed the board: see how far off you were and then have another go

■ Change things around and fire again. This time you score a hit

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OCEAN

THE UNTO

Batman's sexy graphics and superb gameplay led to talk from Ocean of a new commitment to 16-bit games. Now *The Untouchables* is here we can test the game against the hype. You've played the demo on November's Cover Disk, now grab a look at the real thing

The fight against the Mafia is exploited yet again in *The Untouchables*. The Mafia have raged war and been a convenient enemy in one game plot after another, from Actionsoft's *Capone* to Mirrorsoft's tedious *King of Chicago*. Their presence has become predictable, unoriginal and boring.

The Untouchables can hardly claim to look at 1920s Chicago in a new light, but with a strong film behind it, sales are guaranteed – even if gameplay isn't. So what exactly do you get for your dosh?

The Untouchables is structured on the same model as *Batman*. You move through a succession of different levels in your quest to crush Al Capone and his henchmen. In fact level one could almost be the first level of *Batman* with different sprites.

Elliot Ness has discovered the Mafia in a derelict warehouse, which is the cue for an eight-directional scrolling platform level where you must wipe out Capone's thugs and collect vital evidence.

This level sees you confronting Capone's henchmen and bookkeeper. Everytime you shoot the bookkeeper (a vicarious thrill for all those having trouble with the inland revenue) he drops a ledger which you can use as evidence against Capone. This must be collected before it disappears, and then a new accountant enters the level.

To help you find the bookeeper there's an arrow in the top corner of the screen which tells you whether you should move up or along. The bookkeeper is unexpectedly agile so catching him often means leaping up and down levels with gun at the ready. Unfortunately this isn't as easy as it sounds because the levels are saturated with thugs, blasting at you and reducing your energy levels. The thugs are easily killed but there are so many of them that you can forget about going straight for the bookkeeper. Kill the thugs first and they drop bonuses such as rapid fire and extra bullets – essential if you're going to keep hitting the bookkeepers.

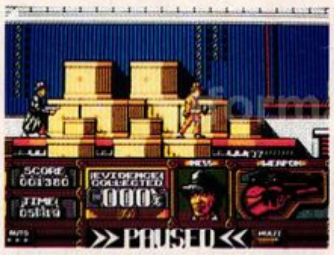
In the second level you're on a bridge, flat on your stomach, attempting to thwart illegal trade in liquor. To defeat Capone's henchmen as they fire bullets and toss bottles in your direction, you roll backwards and forwards across the ground, lining up your sights on them and firing. To complete the level you need to shoot all the bottles of liquor that appear around the bridge. Winning in this scene is all about keeping on the move. At the first sign of thugs, shoot and roll out of the way.

Level three is the alley scene given away on our Cover Disk in issue 5. You're under constant fire in a tricky ambush as Capone's men pump round after round in your direction. Fortunately you've got your pump-action rifle and as your attackers appear from behind windows you use the impressive weapon to blast them to shreds.

There's a short time limit to this level so you need to line up your sights and fire as fast as you can to win. After every two bullets fired, you must re-load your gun. This takes up valuable time so you can't afford to mindlessly blast everything in sight.

In this level, you can switch through the four Untouchable characters, giving you four lives. Untouchables who aren't being used regain energy – unless they've died, which means the key to success is using them in short

■ In the warehouse and you're hot on the heels of the bookkeeper who's holding valuable evidence about Capone's campaign



■ Keep out the way of the henchmen otherwise you'll never collect the evidence you need

■ Forget the bookkeeper and concentrate on the henchmen. Kill them and they leave behind bonus weaponry

■ Kill the bookkeeper and he leaves evidence behind. Pick up the ledger and look for the next bookkeeper

■ You're on the bridge and looking for trouble. You won't have to look far, there's plenty about

■ The objective is to blast away all the bottles. Only when they've all gone do you get through to the next level

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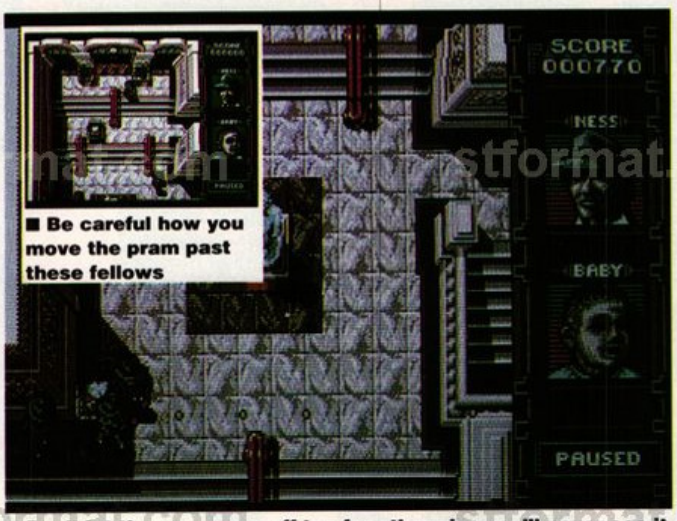
JCHABLES

£19.99



■ Be careful how you move the pram past these fellows

■ Don't let the pram race off too far otherwise you'll never see it again

bursts.

In level four you take up the baby protection racket. One of Capone's accountants has let rip with a gun and a pram is heading down a long line of steps in time-honoured Eisenstein fashion. The pram moves on a constant downward slope and to slow it or move it you must stand in front of it. The aim is to avoid Capone's men who are firing all over the place and still prevent the baby's pram from falling over. If it does, or if you get shot, you lose a life.

One of Capone's men is alone at the railway station in the next level and has taken a hostage as protection. To win the level you have a short time in which to score a fatal hit, but everything moves around so fast that it's hard lining up your sights.

The final level is played on the rooftop when Capone is in court on trial. His hitman, Frank Nitty, is still loose and you chase him across the roof, trying to kill him. This level is similar to the alley scene with you hiding behind walls before dashing out ready to fire. You have six bullets in your gun and to re-load them you move back against the wall and hit the spacebar.

Nitty hides behind chimney stacks and other obstacles on the roof, leaping out occasionally and giving you the opportunity to hit him. You have to score several hits before Nitty eventually dies.

EFFECTS

Many of the graphics in *Batman* were large and fast. *The Untouchables* has moved on a step further with brighter bigger and better graphics. In the alley, bridge and rooftop scenes you play with a massive character, clearly drawn and smoothly animated.

The same can't be said in the pram scene where sprites are much smaller but the backdrops are still consistently detailed.

Sound, like many of the Ocean games, is absolutely horrendous. Spectrumesque beeps and tedious sound chip effects remind you of the key beep on an Oric. All that impressive firepower sounds more like a mild bronchial attack. Whatever happened to state-of-the-art music?

VERDICT

There's nothing original about a do-gooder on the trail of the Mafia, but what is original in *The Untouchables* is the variety of levels you move through. Each is so different from the last that you're encouraged to try your best and progress to the next.

Most of the levels are fun to play, particularly the opening one where you move around the platform shooting bookkeepers.

You're encouraged to chase the bookkeepers up and down platforms which keeps your finger bolted to the fire button.

Sadly there's not a lot of depth to some levels, which quickly increases the boredom factor. This is particularly apparent in the alley and rooftop scenes where the only objective is to line up your sights on the enemy and blast away – not a particularly mindboggling experience.

The pram scene is more interesting since (like a true loving parent) you can leave the baby, dash off down the steps, kill a few thugs and then return to the pram before it crashes.

Although it's difficult to find some of the levels exciting for long, they all have an element of originality in them. The unusual control methods which see you rolling along the floor, hiding behind walls and leaping in front of a pram are a lot of fun to play and, with great graphics as well, *The Untouchables* is very addictive. Looks like Ocean might be on the right track at last.

MARK HIGHAM

GRAPHICS	9
SOUNDTRACK	2
INTELLIGENCE	2
INSTANT APPEAL	9
LONG TERM INTEREST	7
OVERALL	**81%**

■ In the alleyway you meet more of Capone's men. You wait for their heads to appear behind the windows

■ On the rooftop and you face Frank Nitty, Capone's hitman. You must kill him if you want to win

■ With both your bullets used up, you hide behind the wall and re-load, ready for the next time

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Attempts have been made before to "do" volleyball on computer, with varying degrees of success – remember Mastertronic's playable but dull-looking *Bump, Set, Spike*, or Accolade's flashy but shallow *Kings of the Beach?* Now comes Ocean's *Beach Volley*, yet another stab at the popular beach game.

The game recounts the success story of a pair of schoolkids. Their teachers always told them they should pay more attention to their work and not mess around in the gym so much, or they wouldn't get anywhere in life. Now the chance has come to laugh in their teacher's face. The team have struck a deal to go on a world volleyball tour, to the tune of a $250,000 contract. Not really what most people would call "not getting anywhere!"

You control the team as they play a series of matches in such exotic locations as Sydney, New York, Nassau, Tokyo and Paris – each with its own scenery and characters. Play starts in London, on a suitably green English lawn.

After the ball is served, an on-screen hand points to the player currently under your control, while the other player on your team fields the second hit and sets up the ball for an attack. To hit the ball you guide your player towards the blue crosshair, which shows where the ball is about to land. From this position you can either volley the ball over the net or leap up to execute a powerful smash.

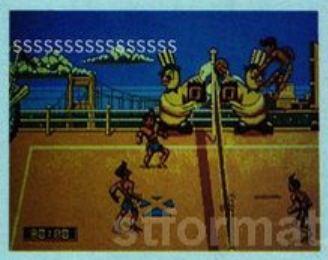
The first team to score seven points is deemed the winner and goes to other locations to take on more international players.

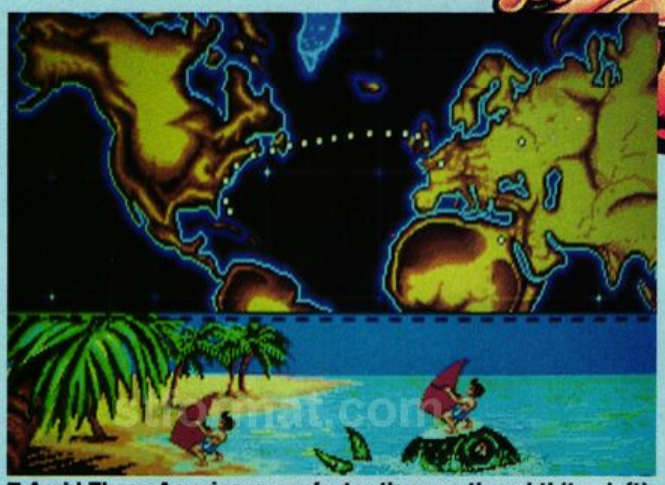
■ **Two-nil down against the London team. Maybe a slam shot is what's needed here. Well if it all gets too much, you can always check out the sightseeing (inset)**

OCEAN

BEACH VOLLEY

£19.99





■ **Argh! These Americans are faster than we thought! (top left) Quick! Stop that ball! Anyway, the win's in the bag and it's off to Nassau (main pic), but will the team get there? Yes, no trouble. Now to beat those beach bums (top right)...**

EFFECTS

The time spent on graphics in *Beach Volley* has been used to good effect. The backgrounds are carefully drawn and the sprites are extremely well animated. The presentation doesn't stop at neat sprites and backgrounds though; there are a number of humorous intermission sequences as the players travel from one location to another – which usually end up with one of our heroes having a mishap!

One bone of contention is that the perspective goes askew at times, leaving you wondering where the ball's supposed to be coming from. This is infrequent though, and doesn't take away the fact that an excellent job has been carried out executing the graphics.

Sound, is a different matter. A few "boing-ping" effects have been bunged into the machine to play twee little ditties. There have been worse soundtracks on the ST, but then again, there have also been a hell of a lot better.

After five minutes the natural reaction is to kill the volume completely. The ST is certainly capable of better aural delights.

VERDICT

Once the appeal of the graphics has worn off, the realisation hits you that *Beach Volley's* gameplay is repetitive. The only way to score points is to either return the opponent's smashes as soon as they're hit, or get them to knock the ball out of court (in the same place every time, I might add).

The two player mode is a little more fun because the human element provides the necessary unpredictable edge to your opponent's play.

Beach Volley is good fun for a while, especially as a two player game, but when your friends have gone home and you're left alone in front of your ST, then you soon get fed up of thumping the ball back and forth. Even the amusing intermission sequences fail to lift the preceedings above the mediocre level of interesting.

Still, *Beach Volley* is the best representation of volleyball seen on a computer so far. Maybe the true potential of the sport is doomed never to be fully realised in digital format.

MAFF EVANS

GRAPHICS	8
SOUNDTRACK	4
INTELLIGENCE	5
INSTANT APPEAL	7
LONG TERM INTEREST	4
OVERALL	**62%**

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EMPIRE

TIME

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The adventure has been a popular genre for years, but as programming skills concentrate on the all-conquering action game, so more and more adventures include action sequences. *Time,* however, harks back to the original formula, where a map and a sound memory get you further than good joystick technique

Despite its original 3D environment Empire's last adventure, *Sleeping Gods Lie,* never really took off. Now hopes are pinned on the more polished *Time,* with an unusual plot that has you exploring historical periods and meeting classic heroes.

Set in a space station orbiting Earth in the year 2047, *Time* begins by instructing you to see the director of the Space Station, who then passes you on to someone else (good to see they've got the bureaucracy up and running). The plot unfolds as you talk with different characters. But, as you'd expect, you only get to meet them by overcoming obstacles.

You soon learn from a research scientist on Earth that an android (or MEK) is on your satellite and he's about to start self-replicating: this could be The End of Civilisation As We Know It. You're in a race against time to save the planet.

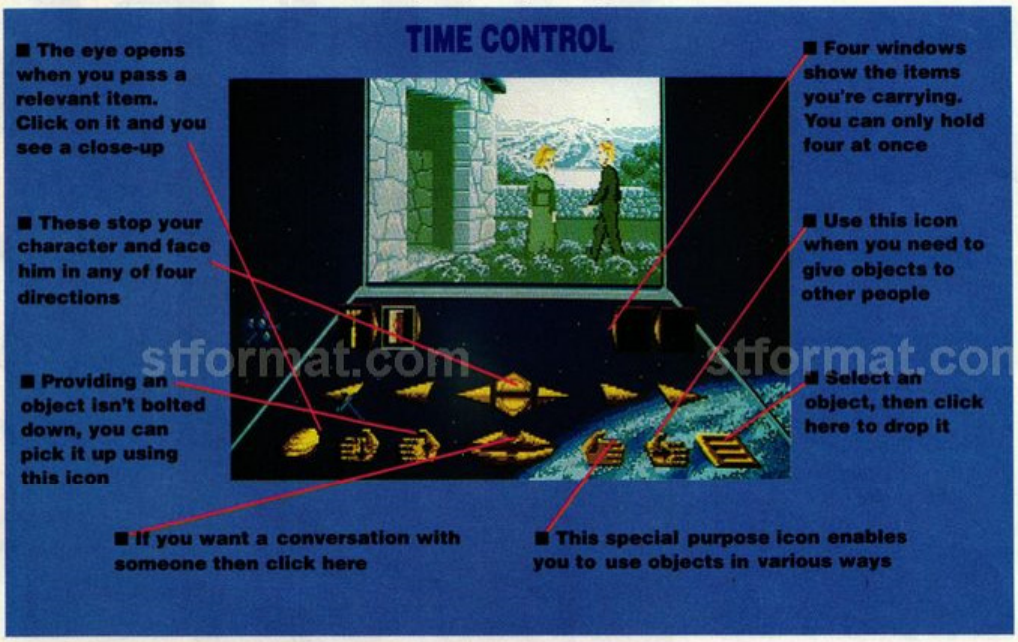
To save Earth you've got to visit five centuries using the time machines found on your satellite: you need to find a window in your filofax to see Merlin ye Wizard, Florence Nightingale, Leonardo da Vinci, Julius Caesar and Confucius.

The game directs you to each of these in turn, so there's no chance that you can come across someone by accident. Merlin's first on the appointment list, and if you play your cards right he gives you a magical amulet that's charged up whenever it's given to powerful characters – the key to winning the game. The discharging process neutralises one of the MEKs on the spaceship. Thus, by visiting all five characters in turn and returning to the spaceship with a charged amulet, you can gradually remove the mutant androids.

The environment in which all of this is played differs from other adventures: the action occurs in a small window, with icons underneath to control your character. As you direct him around the space station, you meet other characters with whom you interact to obtain valuable information. Often just passing a character provokes a small burst of speech, though this is rarely helpful. By clicking on a TALK icon, however, you can communicate with the character and obtain more useful assistance. Ridiculously protracted conversations may even result in being given an object to help you out later in the game.

Besides the movement icons which offer two walking speeds,

■ This transporter whisks you around the space station



■ First obstacle is how to get past this ugly character. You're on a secret mission and need to see the director, but this guy mustn't know what you're up to

■ You have to go back several steps to find the hammer which is the answer to getting further (no, you don't simply whack him around the head with it!).

■ Now go back to the reception area where the problem can be overcome with a little thought. As you pass the alarm, the eye icon opens. You take a closer look

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■ After ignoring the Doctor's warnings, you're about to step into the Doctor's time machine and go forward through time to discover the fate of the Earth. This is just the first of many trips that you'll make in your bid to rescue the

■ As you wander past all the museum exhibits, the eye icon opens, prompting you to look more closely. But time's scarce, the future of the Earth may depend on your speed. You head straight for the time machine and another age

■ The game takes you through five centuries where you must collect a magical amulet to neutralise the destructive robots waiting to destory Earth. You've come here to visit King Arthur but before the mission is over you will have met many great people

there are numerous hand icons to pick up objects, put them down and use them. As you move through the adventure an eye icon opens to inform you that you're close to something that can be examined. This is essential, because many of the important items you pass aren't visible in the window. By clicking on the eye icon you're given a close-up view of the item, and then you can select to store or ignore it.

You can only hold four items at once – and since you pass numerous red herrings, you need to be careful you don't drop something important for the sake of something useless.

EFFECTS

Animation is used sparingly, but there's enough there to convey the impression that things are happening. You direct your character using the arrow icons to walk him left or right, and the background scrolls until you reach a door, when a new backdrop replaces the old one. Occasionally you encounter extra scenes which include special animated effects such as the transporter: panels in the wall whizz past to suggest movement.

The main screen features a backdrop over which the playing window and icons are placed. When you move into different time periods, this backdrop changes to a relevant scene for that period.

Graphics are very colourful and well defined. And, while the characters don't look entirely believable and tend to moonwalk rather than walk, you do get that all-important feeling of being there.

All sound uses the ST's sound chip. After a long intro tune you hear infrequent spot effects such as alarm bells. Not very rousing.

VERDICT

Time doesn't just simply plonk you down in a space station and leave you to get on with it. It directs you through the adventure, presenting obstacles which you need to overcome to progress. These obstacles often require you to backtrack a few steps and either find an item or continue a conversation with someone you previously ignored. This makes the game great fun, particularly for someone who doesn't enjoy spending hours lost in a section of the game which is no use to you whatsoever. It does, though, make it less exciting for the adventure enthusiast who knows the ins and outs of every adventure ever released.

The environment is simple enough to be learnt very quickly, and that's important, because the last thing you want to do is spend hours working out how to interact with the game. But because of this, the problems soon begin to appear too similar and too easily solved.

Not that *Time* is boring, because with a wide variety of backdrops (the game comes on three disks), it's surprising just how tempting it is to advance into different time phases.

MARK HIGHAM

■ You've hurtled forward in time to see what the Earth's going to look like if you don't complete your mission. This character can talk to you for hours, but all you really want is a code you need for later

GRAPHICS	7
SOUNDTRACK	5
INTELLIGENCE	5
INSTANT APPEAL	8
LONG TERM INTEREST	7
OVERALL	**79%**

■ The hand icon is illuminated, informing you that you're holding an object which can be used. Whip out the hammer and activate the alarm bells

■ Now you head for the director. As you do so you're passed by the mutant – who's more interested in what set off the alarm than in your presence

■ A couple of steps later and you're in with the director. Engage him in conversation properly and he'll reveal your mission and present you with a shuttle pass

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INFOGRAMES

NORTH AND SOUTH

£24.99

The software industry, it seems, is moving increasingly towards big licence deals. Not content with movie and book tie-ins, cartoons are now on the menu as well. The British have lifted *Batman, Superman, Garfield* and even *Snoopy* from celluloid to the world of animated pixels, and the French have followed with classics like *Asterix* and *Tintin*. And now another comic strip has surfaced as a computer game – this time a French hit called *Les Tuniques Bleues*. The result is *North and South*, an American Civil War story that mixes typical wargame strategy with comedy and arcade-style conflict.

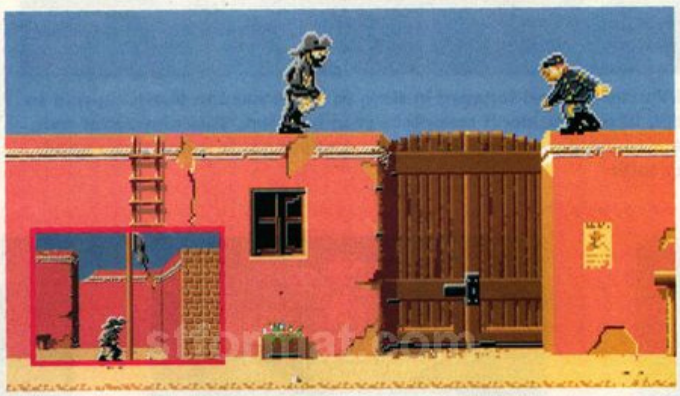
The strategy element is planned on the map. There are two competing sides and flags indicate their territory. A single character, dressed in either brown or blue, lets you know if the land is occupied. Your aim is to defeat all opposing troops; best achieved by fighting for territory around the railway line which runs across the map. If you can capture enough land, you'll find the train starts dropping pots of gold into your lap – you get an extra man with every five pots.

The map is divided into territories and within each turn you move each of your armies into adjacent territory or combine two troops – then the enemy does the same. If there's any opposition already occupying the land, you fight in an action sequence to decide who controls the territory. The train then chugs along the track with the gold.

The railway line is the key to victory. Wherever possible, the train runs on tracks through adjacent territories which are commanded by the same army. The game starts with the train running between enemy territories, delivering gold. You must break the row of three adjacent enemy territories to force the train to deliver gold to your own territories and allow you to buy more troops.

■ Now it's the train's turn to move. Its gold won't be falling in your lap while the land is under enemy control

■ Go into battle and you command foot soldiers, cavalry and cannon-bearers



■ You need to own two towns linked by rail, but if the land's already occupied, you must fight for it. Here, you run along the wall in a horizontally-scrolling level, until (inset) you reach the flag

EFFECTS

There really isn't a lot to admire in the graphics department. The map is okay but the action sequences are awful. Scrolling is ridiculously jerky in both the fort and train scenes.

The battle sequence is hardly any better with character sprites little more than a few pixels square. It's pretty difficult to be impressed by cavalry or cannon firepower that you need a magnifying glass to identify.

The game is graced only with the occasional burst of sound to create spot effects such as the moving train or cries of war.

VERDICT

As long as you aren't after a realistic representation of the Civil War, the first thing to hit you about *North and South* is how much fun it looks to play. Then you realise you have an inadequate manual to digest and some serious playing skills to dust down.

It doesn't take long to figure out the best way to attack opposing armies once you've taken control of the railway line, but reaching that happy situation can be hard.

Played on the strategy mode, probability decides who should win, but when you're taking part in the action scenes you need to master the keyboard for success, and even then the odds are weighted against you. For example, it's impossible to control more than one band of soldiers at a time, yet the enemy is moving the lot simultaneously. Tackling these with the keyboard, now outdated as a control method, only makes an unfair challenge, even harder.

Having stacked up the bad points, it would be easy to dismiss *North and South* as an anachronism but it has its high points. The action sequences keep it alive and the plot requires you to give some thought to where you move. However, the map is too small and the possibilities too tedious to make it worth the effort.

MARK HIGHAM

GRAPHICS	6
SOUNDTRACK	5
INTELLIGENCE	4
INSTANT APPEAL	6
LONG TERM INTEREST	7
OVERALL	**58%**

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X-OUT

Screen shots from Amiga version.

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IMPRESSIONS

KENNY DALGLISH SOCCER MATCH

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Kenny Dalglish's fame must be close to every schoolboy's dream – to become the most capped player of your country, play in the World Cup Finals and go on to manage the most successful football club in the world. Wouldn't it be wonderful if you could take the role of such a star? Well, now you can thanks to Impressions' *Soccer Match*, the follow up to *Soccer Manager*, featuring real time matchplay instead of management skills.

Play can take place between a solo human player and the computer, or as a four-player league between friends. Once all the options like team names, speed and ability have been entered, the game commences.

You control the reds (naturally), kicking initially from left to right. Movement is in the usual eight directions, and kicking the ball is carried out by pressing the fire button and moving the joystick in a particular direction.

At the beginning and at half-time, Kenny gives some friendly advice to the players (he is the manager after all) as well as his reaction to goals scored (both for and against). After the final whistle, the result is displayed and Kenny gives his appraisal of how the match went.

■ A blue player wobbles up to the reds' penalty area. Will he score? I'm sure Kenny's quaking in his boots

EFFECTS

The impression given by *Soccer Match* is of a product hurriedly cobbled together. The introductory screens are iffy for a start, looking more like the kind of pixel-portraits sent in by school children after half an hour messing about with *Degas Elite* than the work of a professional graphic artist.

Things don't improve when the game starts. Similar screens appear every time a goal is scored or the ball crosses the touchline, albeit with an attempt at animation. The small sprites wobble badly across the pitch and the ball bounces like those "Impossi-ball" kids toys from a few years ago.

Anco's *Kick Off* showed that fast smooth scrolling could be achieved while moving a number of sprites around the screen, but to look at *Soccer Match* you'd think it had never been written.

The sound is equally dire, kicking off with a bleep-blip soundtrack the likes of which hasn't been heard on the ST for a good while. The in-game effects are no better, the bouncing of the ball is reminiscent of someone kicking a door and the whistle sounds more like a squeaky bath toy than a referee's blast.

The program tells you that pressing "M" while the game is underway plays a tune, which (surprise, surprise), turns out to be the intro tune! Argh! Help! Where's the volume control?

VERDICT

In any football game, you want to get stuck straight in and start hammering the ball around. However getting to grips with kicking the ball proves extremely difficult thanks to one of the most ridiculous control systems ever installed in a soccer game. Just kicking the ball straight in front of you along the floor is a real chore.

This doesn't mean you'll get thrashed as soon as you start because the computer-controlled players seem to be playing their own version of football. They send the ball in any direction they feel like – backwards, sideways, upwards – every which way but goalwards.

Some attempt has been made to add atmosphere with Kenny's witticisms and playing tips, but they're nothing more than irreverent drivel to break up the sections.

There are a lot of soccer games available at the moment, many of which seem to be trying to beat *Kick Off* at its own game. *Kenny Dalglish Soccer Match* is the latest in line and fails miserably to keep up with the pace set by Anco's winner.

The graphics are poor, sound is weak, and it lacks all the necessary ingredients for exciting gameplay. Even the glorious leadership of Kenny can't save the day!

MAFF EVANS

GRAPHICS	3
SOUNDTRACK	2
INTELLIGENCE	4
INSTANT APPEAL	4
LONG TERM INTEREST	2
OVERALL	**32%**

■ (From left to right) Kenny gives some friendly advice at the start of the game, which works well for a while as the reds score. But things go awry later, and King Kenny is suitably distressed as the blues knock one home. The referee watches the action impassively, though the sound of his whistle lacks the stern authority of his face

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WARP

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Multi-directional smooth scrolling games feature heavily in the shoot-'em-up freak's list of favourite genres. Swooping across a colourful landscape blasting all-comers and collecting energy pods and other useful items is what an exciting blam session is all about.

But remove the colourful landscape and the sexy sprites and what do you have? A super scrolling demo and very little else. Similarly with *Warp*. After initial amazement at the game's scrolling abilities, interest in Grandslam's latest baby falls to zero.

EFFECTS

The action takes place against a one colour backdrop with several – almost indistinguishable – raised features, the purposes of which are difficult to ascertain.

■ **Pill-like craft approaching at 1 o'clock**

■ **Shoot down the leader... then (inset) turn around and take out the stragglers**

Occasional, small, coloured, pill-like craft swoop around your ship in an attempt to annihilate you. And did I say ship? Three coloured pixels would be a more accurate description. You could be forgiven for thinking a housefly had temporarily settled on your monitor.

Sound consists of the usual zap and crash spot effects which do nothing to enhance the gameplay.

VERDICT

Warp plays like someone discovered a really neat way of getting the ST to perform smooth scrolling, and in their haste to show it off to effects-hungry ST gameplayers, forgot to bolt on the game. Sure, the scrolling is incredibly, breathtakingly smooth, but without the necessary gameplay this offering will soon be gathering dust at the bottom of your toy-box.

JERRY GLENWRIGHT

GRAPHICS	3
SOUNDTRACK	3
INTELLIGENCE	2
INSTANT APPEAL	2
LONG TERM INTEREST	0
OVERALL	**20%**

CASTLESOFT

STARWREK

£19.95

Adventure/strategy games based around the phenomenally popular TV programme *Star Trek* probably account for the largest portion of program code on the planet.

Hundreds of variations, from pitiful PD versions to full-blown implementations with groovy graphics, sexy sounds and more planets than you can shake a stick at.

This latest from Castlesoft is an attempt to parody the genre by lampooning Kirk, Spock, Bones et al, and firing back supposedly witty ripostes to your questions and instructions.

The game takes the form of the standard "What now?" adventure, with a picture at the top of the screen depicting the characters you're interacting with or scenes of rooms, store cupboards and so on, that you've blindly stumbled into. Input your name, read a summary of the plot and you're into the game.

■ **Confronted by the First Officer and a dreadful joke...**

■ **Press the wrong button and... ah! Blissful release...**

EFFECTS

There are no effects. *Star Wrek* is a text adventure with rudimentary pictures bolted on at the top of the screen. Those of you who thrill to phaser zaps, the whoosh of automatic doors and the hum of dilithium crystals will be disappointed – there's no sound either.

To overcome the lack of sound and graphic effects, many of the later adventure games feature complex text input parsing, witty commentary and plots with so many twists and turns your fingers had to be prised from the keyboard to get you to stop playing. Not so *Star Wrek*. Gossamer-thin plots, jokes that the average five-year-old would curl a lip at and so many "bugs" of the "you're standing by Spook's console," "examine console," "the console isn't here..." variety that ten minutes of play and you'll be as frustrated as... a frustrated thing.

VERDICT

Star Wrek is destined to go where no *Star Trek* game has gone before – straight into obscurity. Captain Kirk must be writhing in his corset. If the Castlesoft dreams of wealth and fame hinge on the success of this release then they'll remain penniless non-entities for a while yet.

My copy of the game made a satisfyng clunk as it struck the dustbin. We don't have to buy the games we review, but you do. Spend your blue and folding on something else.

JERRY GLENWRIGHT

GRAPHICS	0
SOUNDTRACK	0
INTELLIGENCE	1
INSTANT APPEAL	0
LONG TERM INTEREST	1
OVERALL	**15%**

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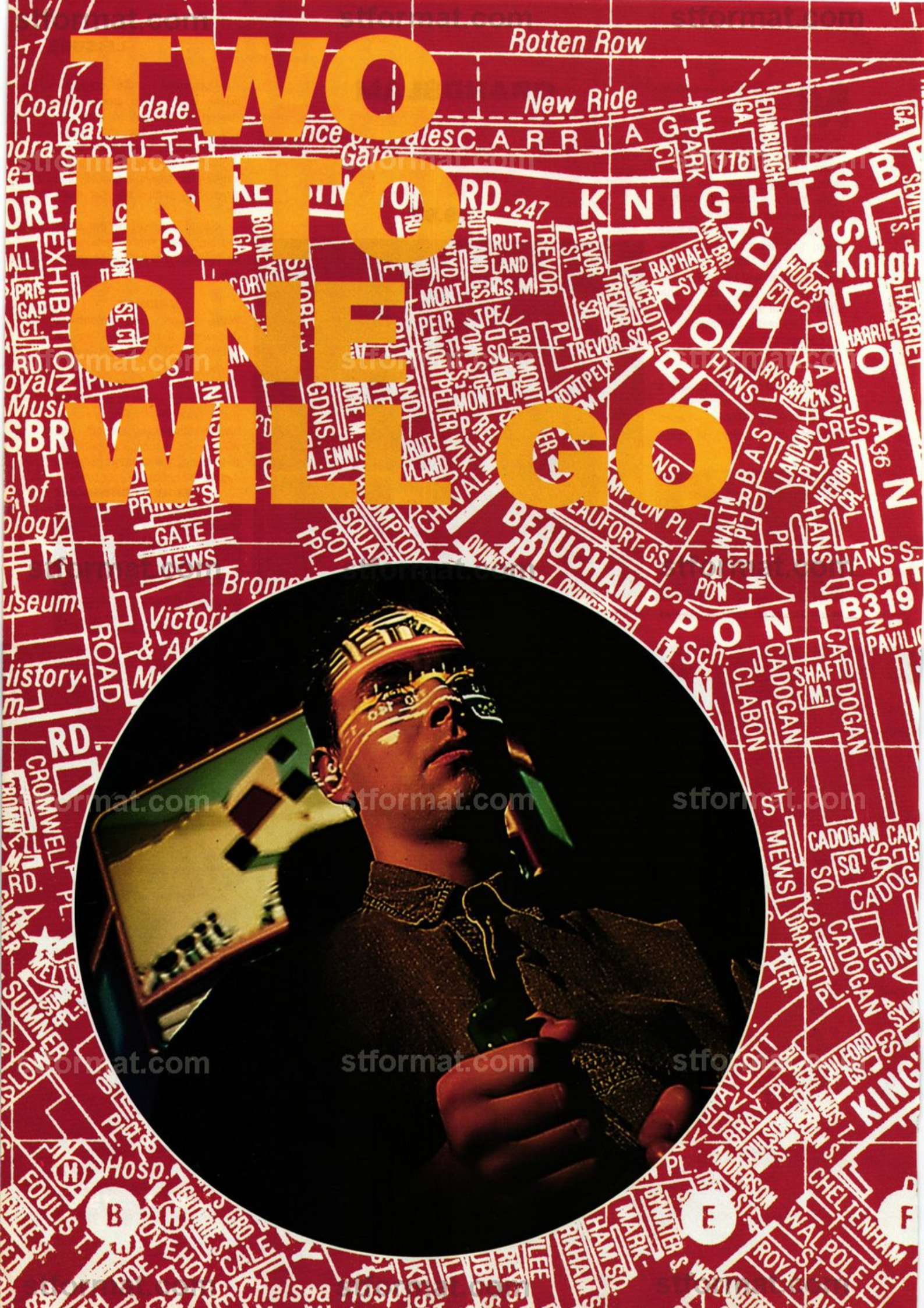
TWO INTO ONE WILL GO



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There's a revolution going on: two-player, two-screen games are a reality. We show you how to link two STs and discover a new dimension to your games. Ride into tomorrow today!

STORY *Mark Higham* **PHOTOGRAPHY** *Ashton James*

Imagine what it would be like to enter a contest in which players across Europe are engrossed in a single ST game. Imagine what it would be like to pit your skills against a French or German or Swedish expert, playing live across thousands of miles.

Interested? Unfortunately you're too late. For this is not some kind of Tomorrow's World item, where the technology looks fascinating but you have no guarantee that it will ever see the light of day. For the real-time international *Populous* contest took place in the summer of last year. We have seen the future. It lies in two-player, two-screen games. And it works.

The competition, involving 16 players – four each from the UK, Sweden, France and Germany – was played across telephone lines from country to country, with France overcoming Germany in a tense and closely contested final. But never mind the result, for the important thing is that two-screen games have been proved possible: distance no object.

BIG DEAL

Populous isn't the first to feature this option, of course. EA's *Battlechess*, CDS' *Colossus Chess X* and Software Toolworks' *Chessmaster 2000* can all be played hanging on the telephone, while *Powerdrome* and *Stunt Car Racer* are less ambitious, requiring a simple datalink cable (and therefore two STs much closer together).

The roots of this two-player revolution extend all the way back to the '70s when, amid all the early tennis games (remember them?), Atari's *Pong* machine drew a great deal of attention for its two-player option. God knows there was little enough in its graphics or sound to warrant excitement, but that interactive gameplay was sure as hell addictive.

By the end of the '70s, though, everything had returned to one-player mode. Instead of the computer becoming the second player and taking control of the other bat, dedicated one-player games machines, many of them handheld, became all the rage. It's out of this background that the computer game emerged as the essentially solitary leisure pursuit it has remained almost until the present day.

ALRIGHT ON THE KNIGHT

Though the majority of computer chess games have been designed as one player challenges in which you attempt to outwit the computer, it is hardly surprising that it was one of the first to offer the two-player option. For chess is aeons older than the upstart computer game, and the immense satisfaction this complex strategy game offers stems from human interaction, with its opportunity to anticipate your opponent's moves and thwart his (or her) ambitions at the same time as you disguise and then prosecute your own.

Early two-player computer chess games presented a simple chequered board and pieces on the screen, with opponents using the the computer as little more than an electronic board. Illegal moves, checks and checkmates were reported, but this was extent of the computer's involvement.

Elaborations to this essentially witless implementation of the great game soon came. In 1987 Software Toolworks produced *Chessmaster 2000*, with clever two-player features. A year later CDS's *Colossus Chess X* made an important breakthrough with the ability to talk to other STs via an RS232 lead. The crucial difference here is that a two-player game is played on two screens simultaneously, both offering a different perspective.

The link is in fact the same as used in *Populous*. A lead from one ST comes out of the RS 232 or serial port and goes into a modem linked to the phone line. Every move you make is sent down the lead and received by the other computer. In the case of chess this information consists simply of the move you've made, but it's the same principles behind *Populous*, with the difference being merely one of degree.

LIFE AFTER CHESS?

Where sedate, intellectual games such as chess set the lead, frantic action games have followed. But it's important to make the distinction between two-player, two-turn games; two-player simultaneous games; and two-player, two-screen games. Since action games, through licenses, tend to follow what's going on at the arcades, there have been hundreds of games – from that battered old classic *Space Invaders* to *R-Type* – in which players take turn to ride. So many coin-op classics are just one player at a time that bringing more players into the game has been a slow process.

Originals such as the Psygnosis ultimate shoot-'em-up *Blood Money* and Mirrorsoft's adventure smash *Bloodwych* both included two-player simultaneous play, but arcade conversions have been slower to come.

Gradually, though, the original coin-ops have started to provide extra controls for other players – and the conversions are sticking close. US Gold's memorable *Forgotten Worlds* and Activision's trend-setting *R-Type* have both followed the arcade lead in two-player options.

Two years ago the arcades were enlivened by the mystic *Gauntlet II*, which took the feature to extremes by providing controls for not two, not three but *four* players. So in the ST conversion a special adaptor plugs into the printer port, providing an additional two joystick ports. Combine these with the existing joystick port and the mouse port and suddenly you've got the possibility for a multi-player game. (Microdeal sell the connector for £9.99, ➢

■ In *Bloodwych* the screen is split in two with each player having half a screen. During play you can meet each other and exchange goods

■ In Hybrid Arts' *Midi Maze* as many as 16 STs can be linked using the midi port. Race around a maze blasting multi-coloured smiley faces, controlled by the 16 players

■ Big games love two-player modes. *Blood Money* is the classic ST shoot-'em-up, with simultaneous play one of its biggest attractions

■ Chess games are famous for two-player modes. In *Chessmaster* you could compete against a human on the same ST, but later games have let you play across the 'phone

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■ **Microprose's number one monster *Stunt Car Racer's* two-player, two-screen mode uses an RS 232 link. You see only your own car onscreen, with no idea what your opponent is up to – until, that is, you meet on the track!**

having originally started supplying it to support *ST Soccer*, which allowed two teams of two players to compete against each other. The game was a flop, though that had nothing to do with the four-player option.)

SIMULTANEOUS ACTION

Possibilities for two-player ST games reached a new high last year with Mirrorsoft's *Bloodwych*, an adventure in the *Dungeon Master* mould, except it was designed to be played by two people at once. Using a split screen, two views provide both players with a different perspective on their position in the maze.

"We initially conceived the game around the 3D aspect before we went two-player," explains programmer "Tag" Taglioni. "But we wanted to do a two-player game because it hadn't been done before. We felt many people wanted to play two-player adventures."

One of the game's big features is the opportunity to play together and help each other out of problems – great, if you're under attack from a hairy green monster and need a helping hand.

But although *Bloodwych* made big advances in the two-player game area, it had its own unusual problem: brilliant as a two-player game, it was never successful as a one-player adventure. As Peter Molyneux, a programmer in the Bullfrog team that produced *Populous*, suggests, "You can't sell games on the strength of their two-player option: they *must* be good one-player games first, with the two-player as an additional feature."

Bloodwych failed as a one-player game precisely because of that revolutionary split screen. In one-player mode the lower half of the screen is blanked out, leaving you to play solo in the top half and the discomforting impression you're getting only half a game. As Molyneux points out, it's difficult to do a successful two-player game, since there are problems in getting the screen to show two views at once.

The logic is inescapable: if you can't use one screen to show both views, you need two.

SEEING DOUBLE

When Geoff Crammond was working on the remarkable *Stunt Car Racer*, high on his list of priorities was a two-screen option. "It was the very fact that it could be done that made me want to go ahead. *Stunt Car* is really a duel, so it's ideally suited to two-players."

Like *Populous*, *Stunt Car* uses the same link as the chess games. A lead goes from the RS 232 port on one ST to the RS 232 port on another. In this instance it's not possible to place a modem at either end because large amounts of data have to be transferred between machines at a very fast rate. Even so, a long lead does enable you to play against the manic games addict in the next room.

This type of two-player, two-screen game has immense and hitherto virtually unexplored possibilities. Playability doesn't suffer, of course – if anything it's enhanced – for each player has a screen to himself. And since both players don't need to be represented on the screen at once, it's necessary to meet only during points of collision. "Two-player mode really is the ultimate," enthuses Crammond. "It takes a great deal more intelligence to knock each other off the track than to play against the ST, because a human opponent isn't predictable and will often use varied tactics to try and win."

LET'S GET TALKING

One of the most appealing, and perhaps surprising, side effects of using the RS 232 port is its compatibility with other machines. As long as the data transferred down the line is only simple information – about the location of a car on a track or the points of collision, for instance – then that information is treated by different machines in the same way. Consequently one player can pit his skills on the ST version of *Stunt Car* against another on the Amiga version. As long as all versions use the same data formats, no extra programming is needed to make your ST talk to an Amiga or PC. Sublogic's *Flight Sim II* and EA's *Populous* and *Powerdrome* are all two-screen games that can be played between ST, Amiga and PC.

The big problem with all-action games is the speed at which data must be transferred between machines. Adding a modem into the RS 232 line is simple, but telephone lines can't handle data at these speeds so modems are out of the question. The *Populous* programmers ➢

LONG DISTANCE

To play *Populous* on the phone you need a modem. Prices start around £150, but go for a recognised make such as Pace or Miracom which lead the modem field with some excellent low-end models – scan our ads for details. Manual-dial modems mean you need to dial telephone numbers yourself: buy an auto-dial model if you can afford it.

Watch out for the modem's speed, measured as baud rates: buy the fastest you can afford. All modems support 300 baud (ie 300 bits per second), but since each letter of the alphabet is made up of ten bits, this only amounts to a somewhat sluggish 30 characters a second. 1200 baud is more popular; 2400 baud is usually only available in modems over £300.

■ **EA's '88 smash *Populous* breathed new life into the two-player scene. Last year a four-way competition saw European countries playing a final live across the phone network. (For the record a French player won)**

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BATHING IN MUD

Multi-User Games have grown in popularity on bulletin boards over the last three years. Using a modem and your ST you dial the board and then play against other people on line at the same time. Multi-User Dungeons (or MUDs), the first of the kind, are text-based adventure games in which you assume an unusual character name. As you wander through the dungeons you meet other characters – who are in reality gamers on line at the same time. Your position in the adventure is constantly updated so that over a period of months you can rise through positions of Warrior, Sorcerer and Necromancer to the ultimate position of Wizard.

A big feature of MUD is the messaging and chatline system which lets players converse with opponents. Using the persona created for the game you can even ask for help from someone who may not be on the system at the same time. When they phone back later, they can read and respond to your message.

MUD was originally conceived at Essex University on a DEC 10 computer, but versions now exist on many bulletin boards. Even Micronet has its own MUD game, *Shades*. The idea is to collect pots of gold as you progress through the game. Then, when your phone bill comes in, you hand back the treasure!

programmers managed to sidestep the obstacle, because the game isn't so speed dependent.

"We saw an enormous potential in *Populous*," explained Molyneux. "There's nothing like playing another person because you really get the tension of a game. Many people have this image that you sit in front of your micro and play alone, but people are now beginning to enjoy playing with the two-player mode, even if it's only simultaneous play. However well you might be able to make the ST become the second player, you can never beat playing a human opponent."

As one of the biggest 16-bit games ever, *Populous* has been on the receiving end of considerable attention, much of it due to its two-player modem link. Shortly after the European competition a Welsh-based bulletin board set up a competition in which entrants pay a modest £1 subscription fee to play *Populous* across the phone line. Two players telephone the board at the same time and they're linked together on the system. As they play data information is sent between STs, with the board acting as intermediary. It's a simple but very successful idea, and proceeds from the subscription fee have enabled a £150 prize to be awarded to the winner.

FACING THE FACTS

Adding the code to make it possible to play games using an RS 232 link is hard work, which goes some way towards explaining why it's only the big games that can include the feature. "It added weeks onto our programming time," explained Molyneux. "Dealing with the RS 232 port is a bind, because there are so many techie bits to get to grips with. Handling the RS 232 on different machines is totally different so we had to code them each separately."

Crammond encountered even more problems when he was programming *Stunt Car*. "It added four to six weeks to the programming time because of the ST's dodgy handshaking." (Handshaking is the term for setting micros in sync with each other so the data transmitted is interpreted correctly. The ST lacks dedicated ROM routines to handle the RS 232 synchronisation so the programming routines have to be written from scratch.)

MIDI RUSHES IN

But the RS 232 port and the modem are not the only options for linking two machines. There have already been moves to use the ST's midi port. It's a lot easier to program than the RS 232 port for one thing, and can run very fast. Since the midi add-on for the Amiga is relatively inexpensive, it's still possible to link an ST to an Amiga, although this isn't so easy with the PC, which has no midi port. But the aspect of midi that has real potential for games is its multi-player capacity. Because the ST is equipped with midi in and midi out ports, one machine can be linked to as many as required.

The first game to use this port on the ST was *Midi Maze* from Hybrid Arts. Released back in 1987, it demonstrated possibilities which still haven't been fully explored. It was a *Pacman*-style game that had you steering your way through a 3D maze in search of smiley faces. With the midi port link up to 16 STs can be linked together and the smily faces are controlled by other players.

BIGGER THINGS TO COME

Mission Software are making much of the midi port option on *Dominion*, due at the end of February. This space trading game lets eight people play at once, all connected via the midi port.

Bullfrog have similar plans on the horizon. Though they're keeping quiet about the project because it could be as much as a year away, they have revealed that it will incorporate many multi-player features. "We're going to add midi code to the new game so you can have as many as five people playing at once. The game has elements similar to *Populous*, so we're also including a two-player modem option."

With Signa's upcoming network for the ST there should even be the possibility to design games that can be played on networked STs. There's likely to be less of a market among games players for this kind of feature, since the network is primarily a business product, but Bullfrog are looking into making it an option for their new game.

It's no exaggeration to predict that soon no software house will consider releasing a game without a two-player option. After all, the RS 232 routines might be difficult to write in the first place, but it's easy to add them to future games once the work has been done.

Although many game designs preclude two-player simultaneous play on one screen, the major programmers are now proving there's no reason why two STs can't be linked. And few games couldn't be thus enhanced. Just imagine playing *Strider* and coming up against an enemy controlled by a friend whose movements you can't possibly predict or anticipate, rather than an enemy controlled by computer. Just imagine playing *Hound of Shadow* and meeting different characters whose actions are the direct result of real people the game at the same time.

It needs to be stressed that these aren't distant dreams: the technology exists. With big games now beginning to exploit the potential of linking several micros, it won't be long before multi-player options become standard. It's something that even state-of-the-art arcade machines cannot do.

And, unlike some breakthroughs that require more memory or some kind of major investment, all you'll need to get into the two-player, two-screen world is a single, one-off purchase of a cable. ■

ST FORMAT'S TOP 20 MULTI-PLAY GAMES

1	*POPULOUS*	ELECTRONIC ARTS	RS 232, modem
2	*BLOOD MONEY*	PSYGNOSIS	2-play
3	*BLOODWYCH*	MIRRORSOFT	2-play
4	*POWERDROME*	ELECTRONIC ARTS	RS 232
5	*STUNT CAR RACER*	MICROPROSE	RS 232
6	*FORGOTTEN WORLDS*	US GOLD	2-play
7	*FALCON*	SPECTRUM HOLOBYTE	RS 232, modem
8	*COLOSSUS CHESS X*	CDS	RS 232, modem
9	*F16 COMBAT PILOT*	DIGITAL INTEGRATION	RS 232
10	*BATTLECHESS*	ELECTRONIC ARTS	RS 232, modem
11	*FLIGHT SIM. II*	SUB LOGIC	RS 232, modem
12	*MIDI MAZE*	HYBRID ARTS	Midi
13	*GAUNTLET II*	US GOLD – KLASSIX	4-play
14	*JET*	SUBLOGIC	RS 232, modem
15	*JOUST*	ATARI	2-play
16	*CHESSMASTER 2000*	SOFTWARE TOOLWORKS	2-play
17	*DARIUS*	THE EDGE	2-play
18	*RVF HONDA*	MICROPROSE	RS 232
19	*PRINCE*	ARC (ATARI)	RS 232
20	*LEATHERNECKS*	MICRODEAL	4-play

2-PLAY: simultaneous two-player options
4-PLAY: four-player games which need a four-player adaptor (Microdeal, £5.95)
RS 232: requires two STs to be linked with a lead. As long as the speeds used are fairly slow, a modem can be inserted so you can play across the phone line
MIDI: links two STs using the midi port. (Note: two midi leads are required for every ST after the first)

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GAMEBUSTERS

Another riotous assembly of cheats, pokes and underhand doings

ROADBLASTERS

Richard Clark has burned rubber over many months to bring this bijou collection of tips for *RoadBlasters*. Take it away, Rickie...

When the car is on the starting line type in **LAVILLASTRANGIATO**, then press the following keys for various effects:

X – Spin the car
S – Advance to next stage
F – Refill fuel tank
G – End game
0 – Remove special weapons
1 – Fit U2 cannon
2 – Fit cruise missile
3 – Fit electro shields
4 – Fit nitro injectors

Richard has also discovered a neat way of gaining extra lives in *Cybernoid*. Simply type in **RAISTLIN** on the title screen and you'll have more lives than you can shake a stick at.

R-TYPE

Don't insert disk two when prompted: instead press the Help key. Type **Me** and press the up arrow. Insert disk two and press the space bar to begin. You now have the following cheat keys:

F5 – Invulnerability from aliens and walls
F6 – Invulnerability from alien fire
F7 – Infinite credits
F8 – Control of the orb using the mouse

SHARE YOUR SECRETS!

You've spent hours burning the midnight oil nosing out all the little wrinkles in that arcade corker, and now you'd like a reward for all the hard cheating, right?

Let *Gamebusters* in on the secrets and a fabbo prize could be winging its way to you. Address your cheats to *Gamebusters! ST Format*, Beauford Court, 30 Monmouth Street, Bath BA1 2AP. If you're the month's best sneak trumpets sound, drums roll and you'll have everlasting fame... Don't say you weren't warned!

SUPER HANG-ON

Tirjinder Gidda has spent countless hours poring over a variety of games, including Electric Dreams' *Super Hang-on*. As a result, Tirjinder achieves the supreme cheat's accolade: appearing on the pages of *Gamebusters!* Take it away Tirjinder...

Get your name in the top position of the high score table and type in 207L. A line of dots will appear. When the next screen appears, hold down CTRL, ALT, Z and T and this will enable you to change the game's gravity quotient. Change it to zero and you won't have to slow down at corners.

IKARI WARRIORS

Get on the high score table and type **FREERIDE**. From then on you have infinite warriors at your disposal. Don't let anyone tell you cheating isn't a rewarding activity. How can you possibly lose!

CRAZY CARS

Take your speed to 204MPH and press F10 to pause the game. Now press fire. The game will slow down but you can still control the car, so by continually pressing fire and moving left and right you can easily pass police obstructions.

AFTERBURNER

Start playing as normal and press backspace to pause the game. Type AGES and you get a level skipping feature by pressing the < and > keys.

PLATOON

Type Hamburger Hill to activate a useful cheat mode. Press F1 – F4 to warp to selected jungle areas or press F5 to get a protective force field.

STAR RAY

Typing **AL YANKOVIC** activates these cheats:

F5 – Infinite shields
F6 – Complete a wave

KINGS QUEST FOUR – SUPER CHEATS!

Aching fingers after spending many hours trying to solve the puzzles in *Kings Quest Four?* Ache no more. Simply cast a weary eye over **Jessica Groombridge's** *Perils of Rosella* cheats, solve the game and retire a happy adventurer...

Here's a list of the things you need to find: magic hen, silver flute, diamond pouch, glass eye, talisman, lantern, Pandora's box, gold ball, obsidian scarab, peacock feather, small lute, silver crown, baby's rattle, gold coins, cupid's bow, broken shovel, shovel axe, fishing pole, worm, Shakespeare book, skeleton key, golden bridle, board bone, dead fish, magic fruit, sheet music, silver whistle, locket, medal, toy horses, glass bottle and gold key. Phew!

Here are some hints on where to find the objects and what to do with them. Begin playing and head for the seven dwarves' house. Once there, tidy up the house (huh! Can you tell this game is aimed at girlies?). When you've finished, the dwarves come back and give you some soup. When they leave, a diamond pouch is left on the table. Pick it up and go to the fisherman's hut. When you get there, walk onto the pier, disturb the fisherman and follow him to his hut. Give him the pouch and in return he gives you his old fishing rod (fair swap, right?).

While you're travelling around, look out for a robin pulling up a worm. Scare the robin away and pick up the worm. Bait the pole with it. Go to the swimming pool and if Cupid is there, scare him away and pick up his bow and arrows. Find the unicorn and shoot him with one of the arrows. This makes him your friend forever, which is very useful when you visit Lolotte in her castle as she sends you on a quest to get a unicorn for her.

Find your way to the haunted house and go into the parlour. Look at the shelves and take the book the computer recommends. Next look at the portrait and the computer will notice that the girl's eye stares at the left wall. Look at the left wall and the computer will notice a latch. Flip the latch and you've discovered a secret passageway. Inside there's a shovel. Pick it up. There's also a flight of stairs, at the top of which is a rusty organ. You can play the organ, but make sure you've saved the game as you might have rather a nasty accident!

Find the minstrel, give him the book and he gives you his lute and marches off reciting Shakespeare. Find Pan, play him the lute and he stops dancing and looks at you curiously. Give him the lute and he offers you his flute.

And this month's supremely underhand winner is (let the trumpets sound, the drums roll...) TIRJINDER GIDDA for work on a huge range of devilish games – everlasting fame shall be yours.

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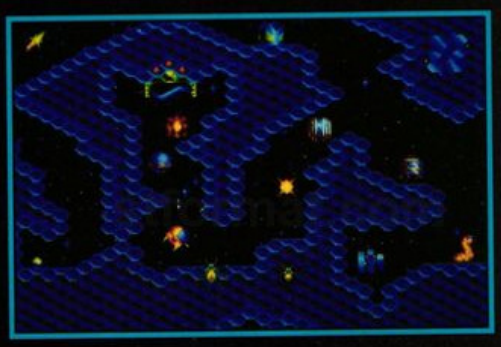
STRYX



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You're really up against it this time. Those revolting robots have finally upped and turned their horribly powerful weapons on their kind human masters.
Someone's got to stop it before it all gets out of hand. I mean, you just can't have bloodthirsty Cyborg assassins roaming the streets of Dome City and expect the citizens to put up with it. Who on earth is going to sort out the mess? You guessed – you get the job.

Fortunately, you are just a little bit on the special side. You are Stryx, the product of Project Alpha Secure, the meanest fighting, smartest thinking machine ever invented. Half-man, half-robot, you are the business, the only one who can stop those wicked Cyborgs.

You'll have to work hard, though, blasting hordes of the revolting creatures (such a sad waste of scrap metal) and rescuing the keys to the Lifeforce.

So, Stryx, you'd better get your jet pack on for some high level robot stomping through the immensely complex underground world of the Dome cities. It's a tough assignment, and time is running out.

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GAMES PEOPLE PLAY

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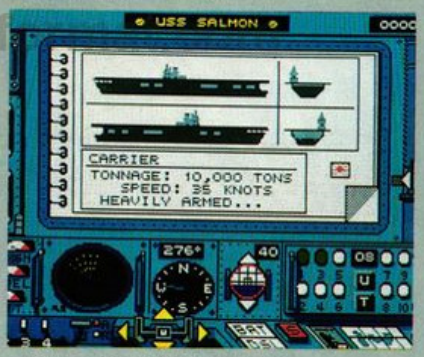
■ *(Above)* **GRIMBLOOD (Mastertronic): sorry to shatter the bliss of your misery, but you dark and gloomy Goths have a treat in store. This whodunnit, set in a mysterious castle, holds a dark secret (be a bit of a blow if it didn't, I should have thought!). Take on the role of young Earl Maximus in this Mike Singleton detective thriller.**

Perhaps the most remarkable thing about this little number is the very little number on the price sticker. All this and more – for just £4.99? It remains to be seen whether this kind of cash can get you a game you'll want to keep for always. Our advice is to hang on for the *ST Format* review before committing yourself



■ *(Above)* **HUNTER KILLER (Mastertronic): goodness me, here's another in the bargain basement series. Astonishingly, a mere £4.99 buys you the command of a whole US World War II submarine in the south Pacific. This latest effort is already being compared (by Mastertronic, we might add) to the likes of *GATO, Silent Service* and *Red October.* But never mind how good it looks at first glance, the proof, as ever, is in the playing...**

■ *(Above)* **THEME PARK MYSTERY (Mirrorsoft): from your grandfather you've inherited the Magic Canyon theme park, once a thriving business until rumours of Something Sinister lurking there sent the old man mad (missing *ST Format*, perhaps?). Discover the awful secret real soon...**

PREVIEW EXPECT

No sooner do we bring this month's big games section to a close than it's time to take a sneak preview of those we expect to arrive soon. There's Ubisoft's mighty* BAT, *the highly promising* Gravity, *a ridiculously titled Domark Tengen conversion and much more

BAT (Ubisoft)

(Above and below) You'll go batty over Ubisoft's latest game: the word is this RPG will arrive with a cartridge, giving the ST version 16-channel stereo sound – for just £40! Set in outer space, *Bat* sends you on an exploration of over 1,000 locations. Two years in production, its startling graphics look well worth the effort.

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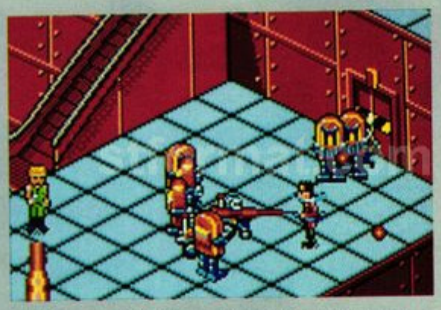
S: GREAT ATIONS



■ *(Above)* **ESCAPE FROM THE PLANET OF THE ROBOTS (Domark): Briefly mentioned last issue, Tengen's latest conversion for Domark is likely to achieve a dubious first: the first game in the history of the world to have a title longer than its scenario. *Feast* your eyes on the sumptuous ST graphics, *drool* with anticipation, *hang on a bit* for the review in the oh-so-difficult to please *ST Format***

GRAVITY (Imageworks)

(Below) From Imageworks comes *Gravity* – a "truly original program," say parent company Mirrorsoft. But then, not too much can be read into that.

The basic plot is hardly "truly original": you control spaceships carrying out various tasks, while avoiding (at least that's the intention) being sucked into black holes. We're waiting this latest Imageworks release with some anticipation.

■ *(Above)* **STARFLIGHT (Electronic Arts): yet another release from the ever-busy EA, this is a space trading game which sounds not unlike *Elite:* visit colonisable worlds, explore, exploit and explode them. It's been a huge success on the boring old PC, so if the programming team get their finger out this could be something of a treat on the ST. We'll be there where it arrives**

CADAVER (Bitmap Brothers)

(Below) From the people who gave us *Speedball* and *Xenons I* and *II* comes a fantasy role-playing adventure that, somewhat unusually for the ST, adopts the isometric 3D environment. Anything these boys do is news, but as always it's a good idea to hang on in there for the *ST Format* verdict!

■ *(Above)* **BLADE WARRIOR (Mirrorsoft): you play brave knight Paladin in a quest to destroy the evil Murk. To do so you need a magical sword guarded by a sorcerer; and to do *this* you must find pieces of stone tablet. Got the idea?**

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CYBERBALL™

October 2006 Paul "Bubba" Kwinn banned for bionic violation

September 2008 Random bionic testing enforced

October 2008 Bionically repaired players take legal action

November 2015 League office disbanded, first completely cybernetic player fielded. Model ST32 gains 382 yards rushing in its first game, but loses an arm in the process.

January 2022 The last human to play the game, Dave "Rocket" Ralston decapitated by a face-masking violation

Atari ST Screenshots

Programmed by: Quixel

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DESKTOP

Welcome to another package of sound advice and useful tips. This month printing problems top the agenda

A WHOLE NEW IMAGE

Nigel Rheam from London has seen how *First Word Plus* imports .IMG files, but wants to know whether it's possible to import *Degas* or *Neochrome* pictures. You can't directly import screens in these formats but you can easily convert them to .IMG format using one of the programs on disk two of *First Word Plus*.

You need to boot up your machine with SNAPSHOT.ACC in the root directory and then double-click on the program DEGASNAP.PRG. Go to the FILE menu option and select READ. A file selector comes up showing the *Degas* files available. Double-click on one of them and it appears on the screen.

This program is really just a slideshow routine; turning the picture into .IMG format is done by the accessory which was loaded during boot-up. Go to the DESK menu and select SNAPSHOT. You'll be given three possible options, but just press RETURN or click on the selected one. A cross hair comes up. Click to draw a box around the portion of the screen you want to save and another fileselector box appears asking for an output name. This saves the selected portion onto disk in .IMG format.

If you want to save an .IMG file which is bigger than a full screen then you have problems and SNAPSHOT cannot be used. However, you could take a DTP package such as *Fleet Street*, which enables you to import *Degas* and *PIC* graphic files. If you piece all these together using picture boxes you can then print the whole page out to disk as an .IMG file.

NEW KEYBOARDS

Leighton Cathcart from Northern Ireland wants to know if it's possible to attach an IBM keyboard to the ST to replace the one already connected. Unlike the ST, the PC uses an intelligent matrix to detect which keys are being pressed. However, if you really want to attach a different keyboard then you can build your own. Back in the days of the ZX81 and Spectrum, owners used to go to Maplins (the electrical component people – not the holiday camp!) and buy key switches to make up their own keyboards.

Most computer-inclined electrical shops now stock the key switches but there are no reassurances that the result would be better than your existing keyboard. Modifications can still be made to the keyboard. *Springz* from **Regent Software (0101 213 439 9664)** are a set of little springs which can be placed under the keys. For £20, you get to prize off the keys and insert the springs underneath. They don't make a tremendous difference but many 520 and 1040 ST owners have noticed a difference.

PRINT OPTIONS

Problems printing text from within *First Word* have prompted **Martin Mine** to write asking if it's possible to get more printer options.

The Southwest Software Library (PO Box 562, Wimborne, Dorset BH21 2YD) has just the thing: PD program *PrintPlus* (Disk 605). It prints *First Word* documents on both sides of the paper, using left and right-hand formats, custom headers and footers and roman and arabic page numbering.

SCROLLING STOS

On side 2 of this month's Cover Disk you'll find two *STOS* programs in the DESKTOP folder. Supplied by **Victor Kirby** from Manchester, these are scrolling routines. PARALLAX 3 demonstrates that parallax scrolling can be done within *STOS* and XSCROLL demonstrates smooth horizontal- scrolling.

CHANGE THE MASTER

It's possible to use *Mastersound* samples within *STOS Maestro* but it's not possible to use *STOS MAESTRO* samples in *Mastersound*. This is because *Mastersound* pokes the message "master" at the beginning of its samples. Just before samples are loaded, *Mastersound* checks for this message and prints an error if it doesn't occur.

The following STOS program adds the message to the start of the sample file:

```
50 RESERVE AS DATA 5,length of
   sample file
60 BLOAD "sample name",5
70 RESTORE 120
80 FOR X=0 TO 7
90 READ A
```

SPECTRUM

Continuing our look at picture file formats, here's the definitive guide to Spectrum 512 graphic files. Spectrum 512 can save both in compressed and uncompressed formats.

Spectrum 512 (uncompressed)

80words	first scan line of picture (unused) – should be zeroes
15920 words	picture data (screen through 199)
9552 words	3 palettes for each scan line (the top scan line is not included because Spectrum 512 can't dis play it)

51104 bytes total

Spectrum 512 (Compressed)

1 word 5350 (hex) ("SP")
1 word 0 (reserved for future use)
1 long length of data bit map
1 long length of color bit map
<= 32092 bytes compressed data bit map
<= 17910 bytes compressed color bit map

< 50014 bytes total

DATA COMPRESSION:
Compression is made via a modified run length encoding (RLE) scheme. The data map is stored as a sequence of records. Each record consists of a header byte followed by one or more data bytes. The meaning of the header byte is as follows:

For a given header byte, x:
0 <= x < 127 Use the next x + 1 bytes literally (no repetition)
–128 <= x < 0 Use the next byte –x + 2 times

The data appears in the following order:
1. Picture data, bit plane 0, scan lines 1 – 199
2. Picture data, bit plane 1, scan lines 1 – 199
3. Picture data, bit plane 2, scan lines 1 – 199
4. Picture data, bit plane 3, scan lines 1 – 199

Decompression of data ends when 31840 data bytes have been used.

COLOR MAP COMPRESSION:
Each 16-word palette is compressed separately. There are three palettes for each scan line which makes 597 in total. The colour map is stored as a sequence of records. Each record starts with a 1-word bit vector which specifies which of the 16 palette entries are included in the data following the bit vector (1 = included, 0 = not included; i.e., stays the same).

The least significant bit of the bit vector refers to palette entry zero, while the most significant bit refers to palette entry 15. Bit 15 must be zero, since Spectrum 512 does not use palette entry 15. Bit 0 should also be zero, since Spectrum 512 always makes the background color black.

The words specifying the values for the palette entries indicated in the bit vector follow the bit vector itself, in order (ie. 0 – 15). ■

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```
100 POKE START(5)+X,A
110 NEXT X
120 DATA 109,97,115,116,101,114,0,0
```

Thanks go to **Alex Theedom** from Peterborough for his sound advice.

PRINT SPOOLERS

James Lease from Bristol has written asking if there are any accessories which provide a printer spooler. In the PD is a program called *Interprint II*, an accessory which enables you to send control codes to your printer. It even provides character translations if you have problems with your printer. A RAM disk, printer spooler and screen dumping routine are on offer. Contact the Southwest Software Library (PO Box 562, Wimborne, Dorset BH21 2YD).

SOUND MASTER

If you've tried to write software which uses sampled sound and you want to show the sound wave then you'll have problems. **Alex Theedom** from Peterborough has the program to do it.

```
10 MODE 0
12 CURS ON
14 KEY OFF
16 XX=5
20 BANKS=start(5)
24 BANKL=start(5)+length(5)-201
30 INK 6
40 DRAW 0,80 to 319,80
50 INK 4
60 FOR X=BANKS TO BANKL STEP
   BANKS/299
70 B=PEEK(X)
80 DRAW XX,80 TO XX,B/1.8
90 INK XX
100 NEXT X
110 WAIT KEY
120 DEFAULT
```

Load the sample into memory bank 5 and type RUN. You can change the position of the sample wave on screen by changing line 60 and line 30 to:

```
60 DRAW XX,20 TO XX,B/15
30 DRAW 0,20 TO 319,20
```

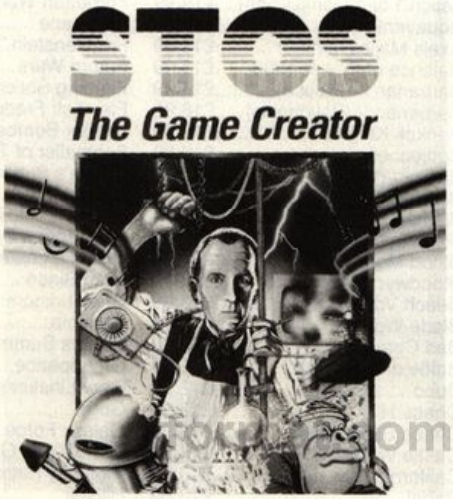
In line 20 you have to subtract 201 bytes from the length of the memory bank because *STOS* adds a few banks on to the length of the bank when you reserve it.

WIN LOADSA DOSH

If you're having trouble with your ST or if you have any hints or tips which you think other ST owners will drool over, then send them immediately, if not sooner, to: *Desktop, ST Format*, Beauford Court, 30 Monmouth Street, Bath. BA1 2AP. (Note the new address by the way).

Each month we give away £30 for our favourite tip, so if you're looking for some extra dosh, and want to share your knowledge with others, get writing.

ALEX THEEDOM from Peterborough wins this month's prize for all his musical *STOS* advice. ■



■ **Take sound from *STOS Maestro* and toss it into *STOS*. Using Alex Theedom's tip (left) and see sound waves hit the roof with every blast from your music!**

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SIERRA ONSLAUGHT

STORY *Mike Gerrard*

A multitude of new games tumble out from Sierra as Infocom's supply source dries up; new adventure mag from* Syntax; *and all the latest news, gossip and inside dirt on what those late-night mysterious helplines are all about

You're about to be up to your knees in games from Sierra On-Line. The animated-adventure specialists have been pretty animated themselves over the past year because they're in the process of releasing more titles than there are at a Buckingham Palace breakfast.

Leisure Suit Larry III is released in January, along with a new game from Roberta Williams (of *King's Quest LXXXVIII* fame) called *Hero's Quest*.

February should also see the release of *Codename: Ice Man*, an espionage thriller in which you play secret agent Johnny Westland hired to secure the release of a US ambassador held hostage by some swarthy chappies no doubt not a million miles away from the Middle East.

Just when you've cleared your February overdraft, March brings the release of another 50 quid's worth of goodies. *Conquest of Camelot* sees Sierra treading where others have trod before, in the corridors of Arthur's Camelot, while *The Colonel's Bequest* takes place in the Louisiana bayous of America's Deep South where alligators... well, alligate, I suppose.

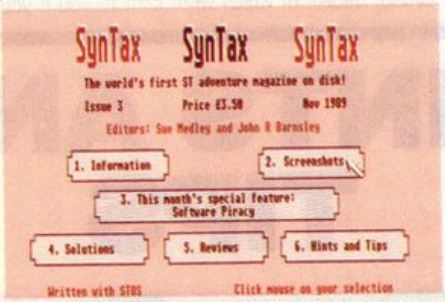
As if all this weren't enough, a release date has yet to be set for *Sorcerian*. Originating in Japan, it threatens to be "a multi-faceted adventure unequalled in role-playing games... 15 games in one... ten-speed scrolling enhances your pleasure... a level of variety never before encountered in role-playing adventures." Well, that's what the publicity hype says anyway. I'll let you know more when they've actually finished writing it.

COST OF SYNTAX

What is *Syntax?* A cunning new government ploy to separate you from even more of your money? Let's hope not, or the *ST Format* team will be broke overnight. In fact *Syntax* is a magazine on disk, and a magazine devoted to ST adventures at that. What more could readers of these pages want?

Syntax is produced by two well-known adventuring names: Sue Medley and John Barnsley. John edited the *Soothsayer* fanzine for a year, while Sue runs an adventure section on Micronet. Between them, and with a little help from STOS and *Degas Elite*, they produce *Syntax* bi-monthly, and are now up to number four. A typical issue contains screenshots from recent releases, a full-length feature article, a hints and tips section, reviews of anything up to a dozen adventures, news, adverts to buy, sell or swap games, a competition and full solutions to about ten adventures.

It's a point-and-click menu-driven program, with print options available. *Syntax* is much more fun than the Poll Tax, and cheaper too at only £20 per annum, or £3.50 for a single issue. Register with **Sue Medley, 9 Warwick Road, Sidcup, Kent DA14 6LJ.**



■ **The opening menu of *Syntax*, a disk magazine devoted to ST adventures**

■ **A *Syntax* competition: which adventure does this scrambled screen come from?**

■ **Read all about it! Or, alternatively, print it. Or click to the next page. Or quit!**

INFOCOM INFO

While Sierra steam ahead and Level 9 follow, I'm afraid it's only depressing news for ST Infocom addicts.

I recently asked their publishers, Activision, for a stocklist of all Infocom ST releases still available from them, and dismal reading it makes – containing just two titles: the recent *Battletech* and, of all things, the extremely ancient *Infidel*. There are no definite plans to release the last few games, such as *Shogun*, *Zork Zero* or *Mines of Titan*, in ST versions, although, keeping their options open, they say it's still possible.

Meanwhile, all the old classics like *Zork*, *Hitchhiker's Guide to the Galaxy* and *The Lurking Horror* will only be available for as long as existing stocks in shops and with mail-order firms last. Buy now or be forever doomed to an empty life without *The Leather Goddesses of Phobos!*

PHONE AID

Ever been stuck in an adventure game and yelled "I'd give anything to know how to solve that!"? Then make a note of the following phone number: 0898-338933. This is the number of the Guiding Light telephone adventure helpline and it's available seven days a week. All you have to give is 25p for a minute at cheap rate, and 38p per minute from 9am-6pm, Monday-Friday.

There's usually someone there until ten o'clock at night, but after that it's just you and the answerphone, and the answerphone sadly can't look up their trillions of adventure solution files for you.

So next time you're fuming over fiendishly impossible puzzles, stop pacing your bedroom in desperation and give them a ring. There's no subscription to pay, no membership needed, all you have to bear is the cost of the call – and a little guilt for cheating! ■

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THE WRITE IDEA

Although the Almighty claimed vengeance as His own territory, it's still very satisfying to wreak it oneself. For adventure players who've torn out hair trying to solve puzzles, this often takes the form of writing their own adventure and cramming it with problems that make the Labours of Hercules look like a day at the seaside.

But while it's reasonably easy to get help in solving adventures, it's not so simple when it comes to writing them, though there are several sources of help available if you know where to look. *Adventure Coder* is a new-ish 36 page magazine that aims to come to the rescue of adventure authors everywhere. It appears monthly, and though it's only four issues old, it improves every time. It's not dedicated to any particular machine, in each issue there are a general articles of interest to everyone: devising storylines, copyright questions, marketing your own games, submitting them for review, setting problems and so on. Recently there's been a short series by Matthew Conway, currently converting Spectrum adventures to the ST, on using STAC (the ST Adventure Creator).

STAC, of course, is the most popular method of writing an adventure on the ST, but *Coder* also lists several PD authoring utilities, and will soon cover Microdeal's *Tailspin*.

Editor Chris Hester is looking for contributors with ST experience, so if you can tell people how to keep their flags flying and their conditions under control, contact him at **3 West Lane, Baildon, Nr Shipley, West Yorkshire BD17 5HD.** To see a sample copy, send £1 to the same address.

■ **Stacks of info about STAC – if you know where to look!**

Don't expect a glossy product of the *ST Format* type: *Coder* is a home-produced magazine aimed at a band of enthusiasts.

In addition to the advice contained in *Adventure Coder*, there is an official STAC User Group, details of which were sent to you if you returned your registration form to publishers Incentive.

The STAC User Group isn't run by Incentive, but is organised on their behalf by Pat Winstanley of 13 Hollington Way, Wigan WN3 6LS. Send Pat a stamped addressed envelope for further details. Join and you get a bi-monthly magazine that has already run several articles by Sean Ellis, who wrote STAC and there's a telephone hotline for when you just can't wait.

If you think STAC would be a decent program if only you could customise it with a few of your own routines, then you can now get the full source code for the program by sending a large SAE to Incentive at **Zephyr One, Calleva Park, Aldermaston, Berks RG7 4QW.**

LULL BEFORE *PAWS*

The 8-bit version of STAC (GAC) was considered to be state-of-the-art until the release of Gilsoft's *Professional Adventure Writing System (PAWS)*. To find out when, and indeed whether, be released on ST I asked Howard Gilberts of Gilsoft.

He told me that the ST conversion should at last be happening this year – as soon as he can drag programmer Tim Gilberts back from Spain, where he's helping with the Spanish conversion of the program!

HINTS AND TIPS

BARDS TALE

Wigan's finest **Sandra Sharkey** sends me some helpful hints on the addictive *Bard's Tale*. She suggests you start by familiarising yourself with where everything is. Not an easy game to map, but worth the effort. Garth's Equipment Shoppe is in Main, a lone building on the right (you can spot it on the general map that comes with the game); the Review Board is in Trumpet; Roscoe's Energy Emporium is in Grey Knife. To get into the cellars of Skara Brae, go to the Inn in Rakhir and buy a drink of wine. You're then transported down to the cellars. Once you can defeat the statues, build up your characters quickly by going around Skara Brae fighting all the statues you can find. Don't forget to save frequently so you don't risk losing any experience points.

The Mad God's name is Tarjan, and the answer to the Magic Mouth is Sinister. Before going into the castle you need an eye from the catacombs. Watch out while mapping the first level of Mangar's Tower, because you can be teleported to the second level without realising it, and the top right-hand corner of both levels is identical. On level four you can only access the stairs when all the doors have turned into walls and vice versa. Finally, when faced with a pool of boiling liquid on level five – jump in!

■ **Woke up-a dis moornin'-a, had-a dem-a Bard's Tale-a bloos again...**

SHYMER'S SECRETS

But **Sandra** is as keen on setting problems as she is on solving them. As well as co-designing Level 9's *Scapeghost*, she also wrote *Shymer*, the demo adventure presented with Incentive's STAC and now available in the public domain. Here's some advice on that one, requiring you to correct the mixed-up nursery rhymes.

Examine the baker's counter and give what you find there to Jack Horner, but only after you've spoken to him. He then gives you something to use on Lucy Locket's pocket. To deal with Miss Muffet you need gloves and a spider. First climb the sycamore tree, then examine it and wear the gloves to get the spider. Now go and climb the oak tree and drop the spider. *Don't visit Tommy Thin while carrying the cat!*

Examine Willie and give him the nightie. If you take the springs from the bed near Humpty Dumpty you'll stop him bouncing back up again. If you attach them to the cow it can jump over the moon.

ANIMAL MAGIC

Here are a few tips on dealing with some of the creatures in *King's Quest IV*, to add to the general hints given in *ST Format* issue 5.

To deal with the unicorn, shoot it with Cupid's bow – you can find Cupid down by the pool. You need to throw the ball at the frog before kissing it (the frog that is). To pacify the snake, play the pipes. To escape from the whale is ticklish business. To pass the ogre's dog you need a bone from the pile found in the caves. To free the unicorn, stand between the two gates to open the gate in the stable.

TASS TIMES TIME

Soon after the start of *Tass Times in Tone Town* you should be able to get into Gramps' lab by unlocking the door with the key you find in the jar on the counter. Once inside, look at the pizza, then look at the fishbowl. A bunch of guitar picks might not seem to be that great, till you discover they're Tone Town money, so get them, and the book, and read the book. Later, at the generator, throw the switch and enter the hoop.

To get past Stelgad you need a press pass... and here's one you made earlier, of course, when you were at the computer terminal. After Stelgad you should be able to meet the Daglets and get a Zagtone, which you can later use to release Gramps from his handcuffs. ■

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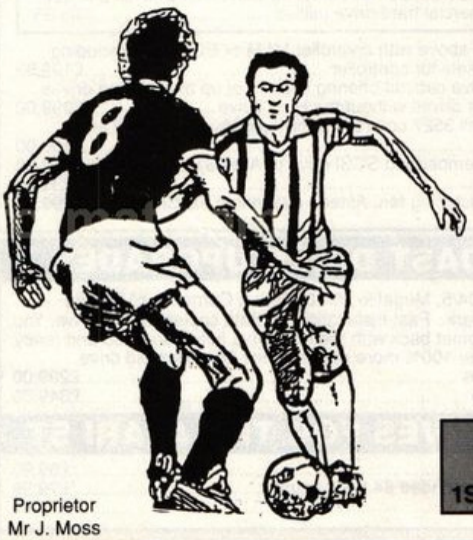

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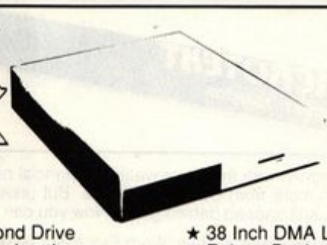

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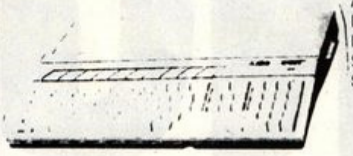

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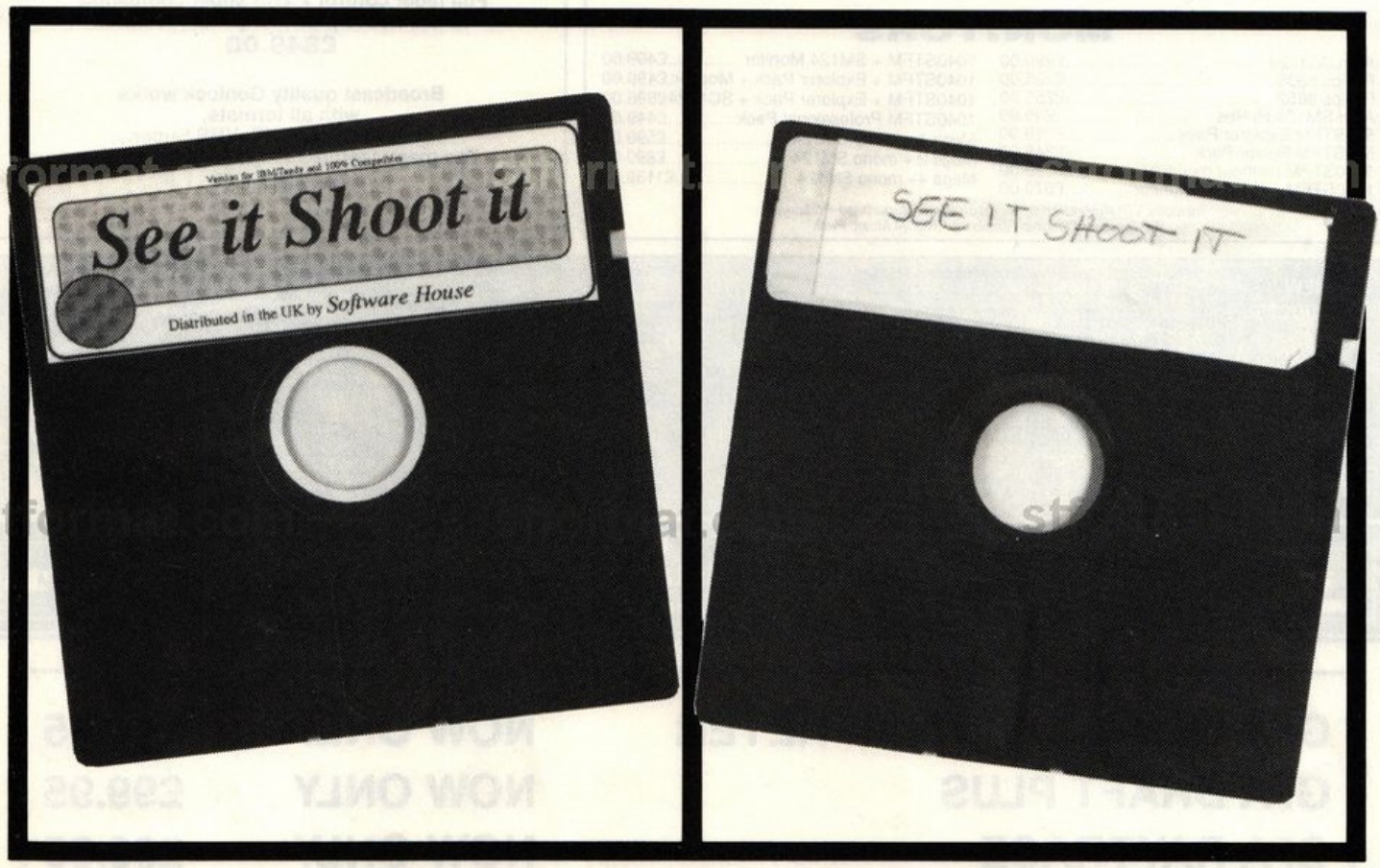

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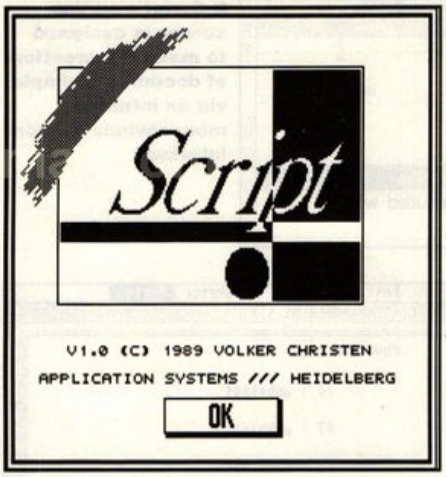
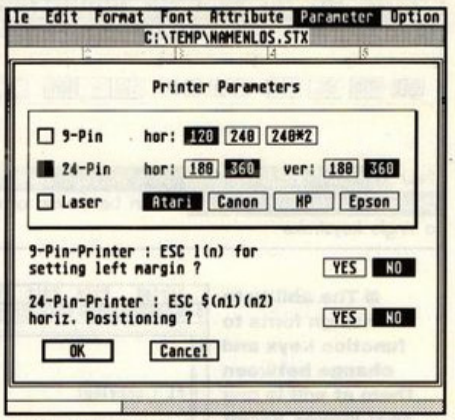
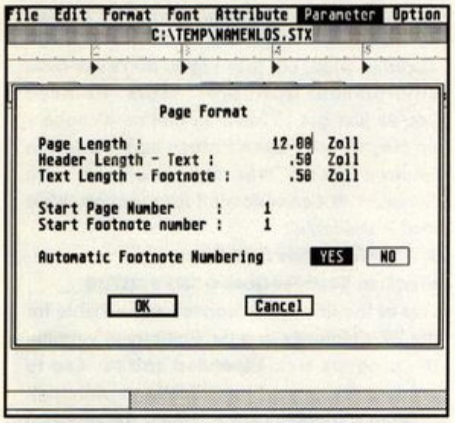






■ ***Script*** **provides complete control over functions such as printer and page set-up. There's a full complement of printer drivers from 9-pin dot matrix to HP laser printers**

FLOURISHING SCRIPT

STORY *Jerry Glenwright*

Originating in Germany, Signa's new word processor is just what the ST needed – powerful, serious software at a price everyone can afford

Script Word Processor

MACHINE: ALL STs
PRICE: EXPECTED TO BE £70-80
FROM: SIGNA PUBLISHING
CONTACT: 0252 341600

When originally launched, computer hacks everywhere decided the ST was the "poor man's Macintosh." With its windows and mouse user interface, quality monochrome monitor and 68000 processor the machine was indeed very similar to the financially remote Apple computer. The combination of sexy silicon and smooth, sophisticated software when it began to appear, would mean Atari's advertising slogan "Power without the price" was absolutely on the button.

Four years on, and although there's a plethora of quality software it's mainly aimed at gamesters, graphic artists and professional musicians. Fine, but what about the serious side of our favourite machine. Its business potential is terrific, if only the software was available to convert that potential to reality.

GERMAN *SCRIPT*

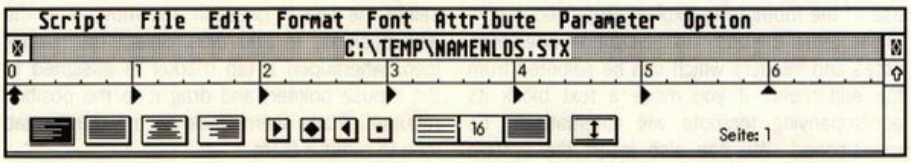
Enter Signa Publishing. The company that's done more to promote the business aspect of the ST than any other in the UK. Products such as *Calamus* the desktop publishing solution, the *Aladdin* Mac emulator and *O-Line* – an object orientated art package – have really shown just what the ST is capable of. However, good though these software packages are, they're limited to specialist uses. What's the most used piece of software in the average computer owners collection? The word processor of course – even games players use them from time to time. Why not produce a revolutionary new word processor that could be used by everybody without difficult-to-assimilate manuals, and priced just right for the person in the street?

And so *Script* was born. Emanating from Germany like so many of Signa's quality software products, *Script* is a new breed of word processor that has many controls and functions to get your documents just right, but is lightning fast and has a user interface that's completely intuitive and which can be learned within half an hour.

VISION ON

Script opens with a screen slightly more than reminiscent of Claris' extremely popular Macintosh word processor, *MacWrite*. The very top of the screen is given over to a standard GEM menu bar. Reading from left to right there's a file menu which enables you to open word processed or ASCII files, save files and load and save text blocks.

Within the edit menu you can search and replace text strings, copy and insert rulers, and select or deselect the complete document. All the functions available in this menu have hot



■ **This menu gives Script the look and feel of much more expensive programs such as Claris' *MacWrite*, making tab, ruler and leading functions easy to use**

■ **Headers, footers and the system date can be inserted easily into any document**

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THE ALTERNATIVES

***Script* is good, but maybe you don't like GEM environment word processors. Perhaps you've just got to have an on-line dictionary or maybe your Grandfather expired in the Second World War and you just *hate* Germans. If *Script* doesn't turn you on, what else is available?**

■ *1st Word Plus* £79.95
Electric Distribution: 0480 496789
One of the first word processors available for the ST. Originally in a public domain version, the program was expanded and revised to produce its current specifications. Although offering a friendly user interface the program was widely criticised for its breathtaking lack of speed.

■ *Wordup* £59.95
HB Marketing: 0895 444433
One of the new breed of word processors featuring DTP-like page layout facilities and text flow around graphics. Unfortunately, the program can only use the fonts included.

■ *That's Write!* £129
Cavendish: 01 323 4761
A fast and friendly program that's dispensed with the GEM interface – providing instead, a custom command driver. *That's Write!* features a good font editor and powerful features such as auto indexing and hyphenation.

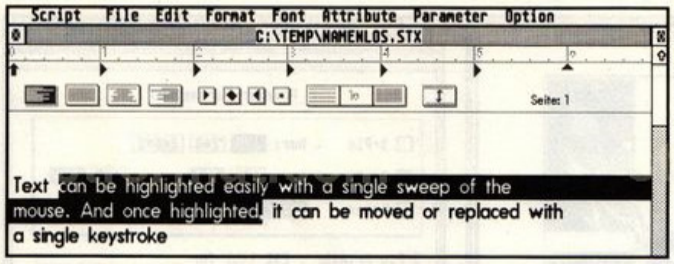
■ *Word Writer* £79.95
Electric Distribution: 0480 496789
Fully WYSIWYG word processor featuring a fast spell checker, thesaurus and a mail merge facilty. Although the program enables multiple documents to be held in memory, they can cause hiccoughs!

■ *Protext* £99.95
Arnor: 0733 68909
After appearing on many other formats, *Protext* finally made it to the ST. The program is fast and features some incredibly useful functions such as being able to run programs from within the *Protext* shell, command macros, a calculator etc. Potential users are repulsed by it's text based, non-GEM interface which many find rather primitive.

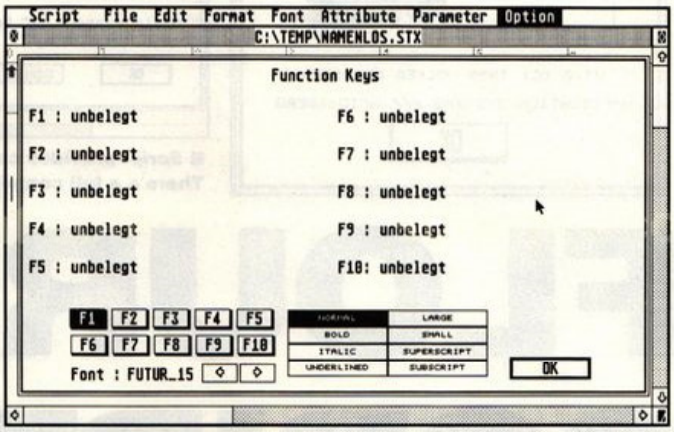
keys assigned to them (such as control-A to select all) enabling power users to navigate easily through *Script's* many features.

Educational texts in particular make heavy use of the footnote to explain propositions contained within the body text. *Script* provides footnotes and headers which can be selected from the edit menu. If you move a text block its accompanying footnote will automatically be repositioned. You can also insert the system time and date at the current cursor position from the menu or via a keystroke.

The rest of the menu bar is given over to font loading, text format options such as superscript, bold and italic, printer and page functions. The final menu on the bar is headed Options. From here you can switch the tab, show rulers, and so on. There's also one very useful feature known as function key assignment. This enables you to load extra fonts and assign them to a function key of your choice. You can then switch between them at a key press within the editing window.



■ *Script's* editing screen is designed to make the creation of documents simple via an intuitive mouse/windows/icon interface



■ The ability to assign fonts to function keys and change between them at will is one that makes *Script* particularly smooth to use and speeds up productivity by leaps and bounds

EASY LAYOUT

Below the menu bar is a document layout window, one of the foremost features of the program, and the one which most users will find beneficial. The idea for this menu is taken straight from *MacWrite*. A row of icons depicting text block justification, tab markers and leading indicators all positioned below a text ruler showing current tab positions. Hanging indents are also displayed.

One of the nice things about word processors is that you can change the appearance of documents quickly and easily – at least, that's the theory. In practise, text highlighting can be tricky and you can wait an age for reformatting functions to do their stuff.

Not so with *Script*. If you have a large block of text and want to change the justification, simply highlight the appropriate block using either the mouse or control key shortcuts (a la *MacWrite*), click on the icon representing the justification required and hey presto! Instant response. Your text is ranged left, right, centred or justified, almost as quickly as you can press the mouse button.

ACTION STATIONS

To change the position of tab markers simply select the one in question and move it to the new position. To add tabs, select the master icon, whereupon a tab marker is assigned to the mouse pointer, and drag it to the position required. Place them back on the master tab icon to remove them.

Many documents require lines of text to be double or triple spaced as an aid to legibilty. *Script* provides leading icons to fine tune the space between lines – all at the click of a button. Any size of text block from two lines to an entire document are changed instantly.

Script is fast and smooth in operation. Although still in a beta test version, the program is robust and simply refuses to crash no matter how many silly keypresses you type into it. The keystrokes and menus are supremely intuitive. I reviewed it without a manual, yet quickly became familiar with the program's features.

NO SILICON DICTIONARY

Script has one or two minor points that I don't like, such as its insistence on saving word processed documents with an STX extender to the filname. I like to save text files as TXT, ASCII files as ASC, or sometimes omit the filename extender altogether. Apparently, this automatic STX extender feature was programmed in at the request of users of other word processors. If you elect to save your file as ASCII however, you can choose the extender to give to it.

There's no spell checker either. For those who have come to rely on their silicon dictionary, it's awfully difficult to go back to using the book version. You can of course, buy one of the many public domain or shareware dictionaries and use it as an accessory with *Script*.

Quibbles aside, it's software like this that leaves you astounded at the predominant view of the ST as a simple games machine. *Script* is the kind of quality word processor the ST has been waiting for – powerful software at a price most ST owners can afford.

FORMAT RATINGS

Features 90%
Easy text block highlighting, function key font assignments and comprehensive menus

Speed 95%
Lightning fast block moves and text scrolling

Ease of Use 92%
The program is almost entirely intuitive. You quickly become familiar with its many functions

Results 95%
Quality documents can be produced

Format Value 90%
The expected price of £70-80 means that *Script* offers excellent value for money

The Competition
1st Word Plus is a similar window-environment word processor but lacks the speed and power of *Script*

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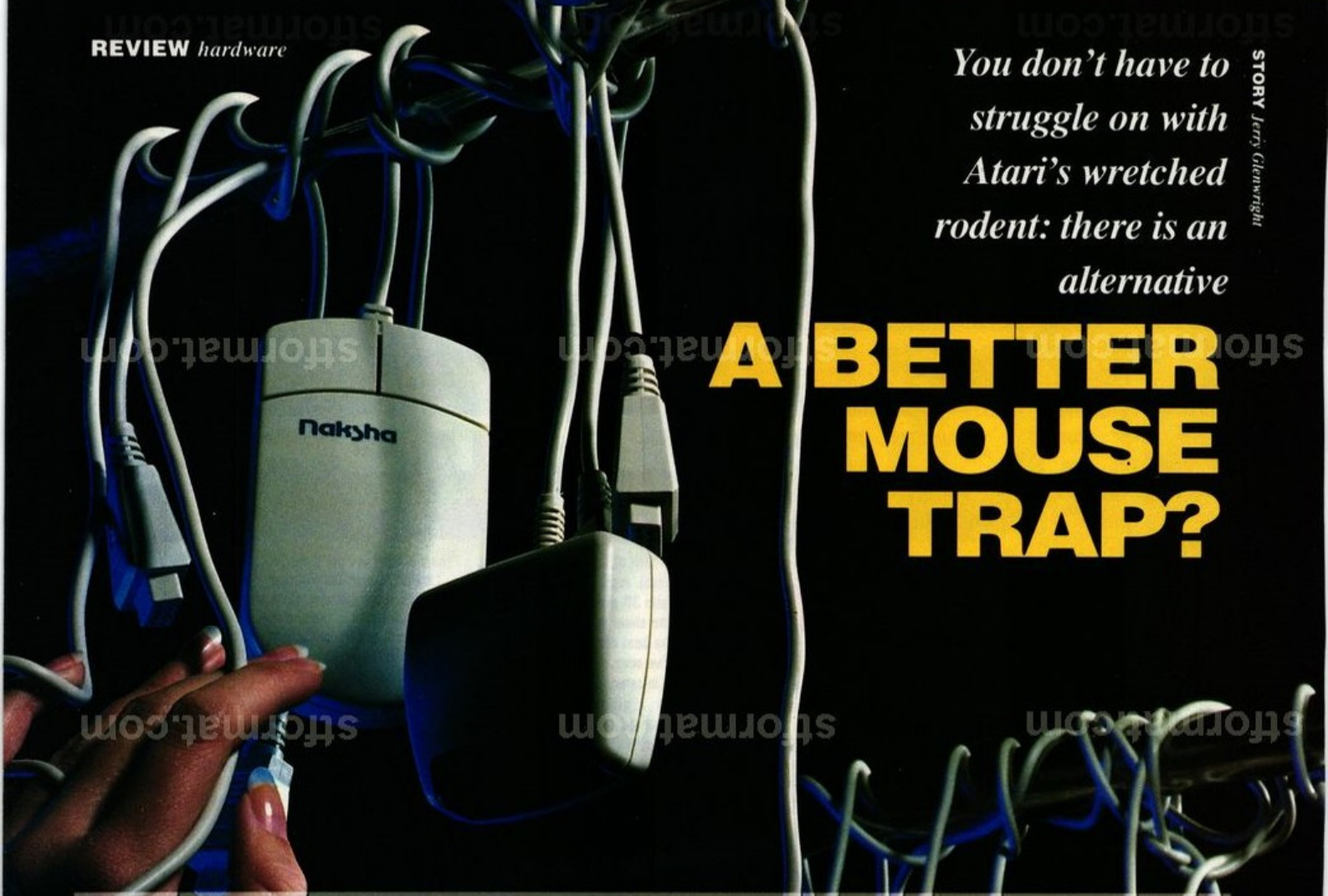

You don't have to struggle on with Atari's wretched rodent: there is an alternative

STORY *Jerry Glenwright*

A BETTER MOUSE TRAP?

Proud new ST owners enthuse about the windows and icons interface and that wonderful silicon sub-species the mouse. But it soon becomes tiresome to use that little piece of grey plastic on a lead. To get the on-screen pointer across the Desktop requires much space on your real-world desktop, and the mouse's tail gets caught in desktop accessories such as pens, rulers and rubbers.

So several electronics companies have come up with replacements for Atari's home-bred rodent. The latest are the Naksha Mouse, a high resolution device that reduces the desktop space requirements, and the Practical Solutions Cordless Mouse, an exotic infra-red item that does a farmer's wife with the mouse's tail and reduces desktop spaghetti.

But Atari's mouse has one over-riding advantage: it's free. So why should you spend good money on a replacement? Read on...

Naksha mouse

MACHINE: ALL STs
PRICE: £39.99
BY: NAKSHA
CONTACT: 0925 56398

As well as being for the ST, Naksha's mouse is intended for use with the Amstrad PC and a games machine called the Commodore Amiga. By attaching the relevant cable you can use the same mouse with all three computers, though not at the same time. The package comes with the mouse, mat-cum-cutting pad and a ridiculous mouse house for £39.95. Smooth and with more ergonomic style than you could shake a stick at, the Naksha feels good in the hand, and rolls around the mat like a well-oiled gobbie (marble to you).

The Naksha is high resolution indeed (280dpi): a flick of the wrist sends the cursor whizzing across the screen. There's a down side to this, however, in that until you become familiar with the new resolution, you tend to move the mouse faster than the computer can cope with. Consequently the cusor bounces back halfway through a move as if it had just bumped into an invisible wall. Familiarity with the device soon follows initial handling, and in no time at all your cursor is flashing around the Desktop as if it's on rollerskates. Both buttons are light to the touch and in keeping with the rest of the design. Altogether a mouse I would swap the ST's sluggish item for.

Cordless mouse

MACHINE: ALL STs
PRICE: £79.95
BY: PRACTICAL SOLUTIONS
CONTACT: BATH COMPUTER SHACK – 0225 310300

Though the whole idea of the mouse is to simplify the process of getting information into a computer, the mouse's tail – necessary for the input of signals – has a tendency to twist up, snag paraphernalia on your desktop and generally create more trouble than it's worth. To eliminate this need for a tail and clear up your desk Practical Solutions has designed an infra-red mouse using similar principles as TV remote controls.

The Cordless Mouse comes in two parts, a signal receptor which plugs into the mouse port and the mouse itself, entirely tail-less, with just a little clear bulb where that prehensile appendage would be. To operate the mouse is a simple matter of bunging the receptor into the ST, fitting the mouse with two batteries, pressing an on/off switch on the side of the rodent and continuing as usual. Control is excellent, though the "feel" of the device is decidedly different from that of the ST mouse.

The on-screen pointer glides effortlessly across your monitor but, at least at first, feels rather like you're operating the whole thing under water, though this soon evaporates (ouch). But £80 on the extortionate side. For those who use drawing boards and other serious apolications the Cordless Mouse is useful, but for the rest of us the cash is probably better spent on a second disk drive, second-hand printer or up-market software package.

FORMAT RATINGS

Naksha		Cordless
90%	**Features**	90%
The Cordless is a neat novelty item		
95%	**Speed**	70%
The Naksha definitely has the edge		
85%	**Ease of use**	90%
Naksha's high res takes a while to get used to		
90%	**Results**	80%
The Naksha is excellent:applications perform better with increased speed. The Cordless annoys when it loses its signal outside a certain distance		
87%	**Format Value**	20%
The Naksha's £40 is not cheap, but it's a quality item. But how can anyone seriously justify £80 just for a mouse, infra-red or otherwise?		

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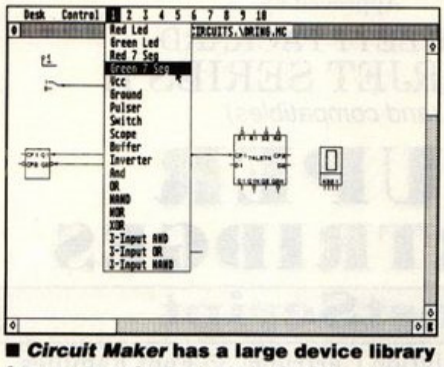
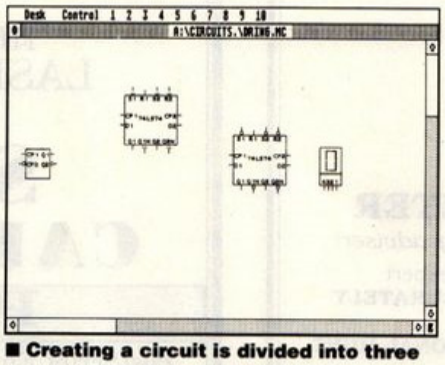
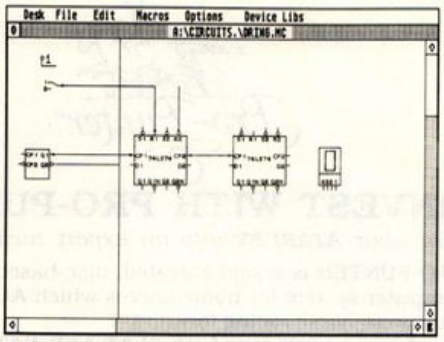


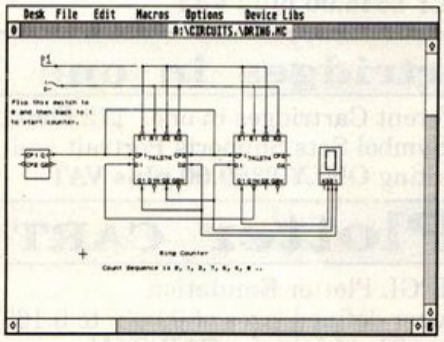
■ ***Circuit Maker*** **has a large device library for you to select as many devices as you want**



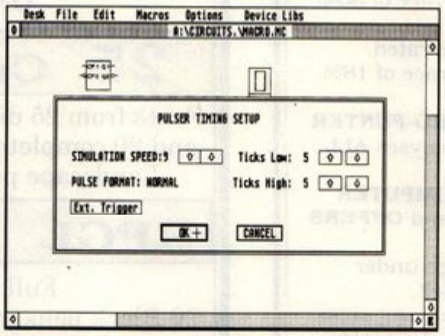
■ **Creating a circuit is divided into three stages. First of all you place the components in the right places**



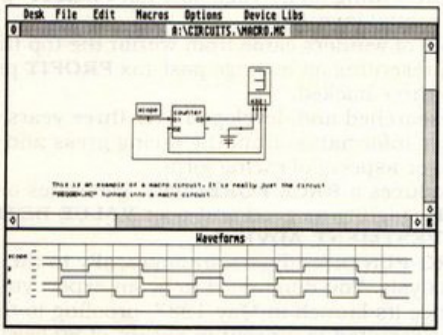
■ **Then draw wires linking the components together using the line draw option**



■ **Now run the circuit and you can see an output on the display. This is what logic circuits are all about**



■ ***Circuit Maker's*** **claim to fame: add a pulser and a scope to a circuit and you can test the output**



■ **This is the result after 20 cycles. You can select to run the circuit for a further 5 or 10 cycles**

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Circuit Maker II

MACHINE: 1040 STs
PRICE: £129.95
FROM: ILIAD SOFTWARE
CONTACT: BATH COMPUTER SHACK (O225 310300)

MAKING LIGHT

STORY
Mark Higham

The void in logic software for the ST is disappearing. Electronics whizzkids are being encouraged to put down their soldering irons and pick up a* Circuit Maker *disk instead

Logic circuits are fundamentals of computer circuitry and being able to simulate their effects can be very useful. This is the aim of *Circuit Maker II*, from the American company, Iliad Software. Very little is known about Iliad and even less of *Circuit Maker I* which must have tumbled into an abyss. The follow-up, however, has just surfaced in the UK and if it's managed to cross the Atlantic then there should be something attractive about it.

And there is. *Circuit Maker II* enables you to design circuits using components chosen from a long list held on disk. Piece them on the board and use connecters to link them up. It's possible to take a printout of the circuit and work from that. This isn't a major bonus. There have already been numerous public domain programs doing virtually the same thing, but *Circuit Maker* has one proud feather in its cap. Once you design the circuit, you can actually test to see if it works as planned. If it doesn't, then you can install various test meters and oscilloscopes to discover exactly where the problem lies.

IT GOES LIKE THIS...

Circuit Maker is made up of standard GEM windows and drop-down menus. Under the FILE heading, come all the options to save files, load old ones or start afresh. If you start a new diagram, you're instantly greeted with a fresh GEM window. Unfortunately only one window can be opened at a time so it's not possible to have several diagrams on the go at once.

The best way to design any circuit is still going to be on paper. But once you've worked out a rough diagram, it's no problem coming into *Circuit Maker* to position the components. You gain access to two new sets of menus from the DEVICE LIBS menu heading.

Under different headings, you find most of the components that you need from LEDs to OR and NAND gates. By selecting a component from the list with the mouse pointer, you move back into the window and the mouse pointer has become the chosen component. Every time you click with the left mouse button, the component is pasted onto the page. You're not restricted to only one screenful – if you want more, drag the mouse off the edges of the window and you scroll through the diagram.

TANGLED IN WIRE

When you've planted a million and one components all over the place, the next task is to link them all up. To do this, go back to the main menu and select the WIRE command. Now the mouse becomes a line drawing tool. Click on the left button where you want to start the drawing and move the mouse either horizontally or vertically. Using a long set of crosshairs and a clever line drawing routine, you link up all the components, with any cross overs indicated by a large dot.

Add power to the circuit by planting a power point and a switch where power enters the circuit. Selecting a run option applies power to the point and the circuit operates. Any switches in the circuit are toggled by moving

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WHAT ARE LOGIC CIRCUITS?

Logic circuits are based around the three logic gates – AND, OR and NOT which are the principles behind computer circuitry. An AND gate has two inputs and one output. If you apply a one to both inputs, then a one will be the output but if either or both inputs are zero then the output will be zero.

An OR gate operates in the same way but in this case, if either or both of the inputs are one, then the output is one. An XOR or exclusive OR gate developed out of this where an input of two ones, gives an output of zero.

A NOT gate has just one input and one output. The input is reversed so that a one becomes zero and vice versa. Other gates have been modified so that NAND and NOR gates exist. These are the same as putting a NOT gate on the end of AND and OR gates.

Using these, you can create all sorts of conditions and these are the theory behind *Circuit Maker*. The one used in the traditional logic circuit is treated like a voltage here, so that lines holding a one are treated as live and will thus activate LEDs and scopes.

the mouse over them and clicking. In theory, all the components touching the wires are treated as part of the circuit, but you need to be extremely precise when linking them up. If there's the slightest imprecision, when you run a circuit you may well find it performing strangely.

ABORT! ABORT! ABORT!

There are two ways of testing what went wrong. Either you can insert LEDs and observe when power is running through the line by the state of the LED, or you can turn to oscilloscopes.

The oscilloscope is available from one of the device libraries and is positioned in the circuit in the same way as other components. You also need to add a pulser – which essentially becomes a programmable clock source. In a real circuit this would be made up from several integrated circuits. Now, when you run the diagram, the wave form from the oscilloscope appears in a small window. It samples an original 20 pulses and then stops, but you can move the waveform on by reading a further five or 10 pulses. As a result, you can see exactly what's going on in the circuit.

If any part of the circuit breaks down, drop-down menus or shortcut key commands enable you to delete or move parts of the circuit. When you're happy with the design you can take a printout.

CUE THE PROBLEMS

Circuit Maker is an ambitious project but doesn't go far enough. The ultimate program for electronics whizzkids would be one which let you position chips and transistors in a circuit, apply a variable voltage and test which chips blew up first. Instead of being aimed at the expert, *Circuit Maker* is aimed at the beginner, offering a way of making and testing often quite detailed logic circuits.

If the software worked as well as it sounds then it would be great for anyone looking to get to grips with logic circuits but there are problems. Unfortunately, linking up the components is so hard that you often find a circuit just refuses to work.

There's no problem drawing the wires and linking things up, but it's often difficult getting the circuit to recognise components. As a result, it doesn't respond correctly and this is very annoying. With this level of unreliability you'd expect a low price tag, but when you're paying £130 you expect something just a little better than this. ■

FORMAT RATINGS

Features 78%
A large library of devices and testing features exist. Easy to edit a circuit

Speed 70%
It has a clumsy feel to it – but that's largely due to the speed of GEM

Ease of Use 48%
Simple environment to piece components together but linking them well enough to work is horrendous

Results 51%
Very difficult getting the circuit to recognise components which means testing it can be tough

Format Value 47%
Useful to build up a theory of logic circuits but it loses its credibility the first time you run a device. You find that you just don't trust the outcome of your circuits

The Competition
Circuit Maker is the only one in the field

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■ Unlike most of its competitors, *Supercharger* doesn't require you to break into your ST. Simply plug in and away you go – there's even a through port so you can attach peripherals

THAT CONDOR MOMENT

STORY *Jerry Glenwright*

Ever wanted to get some tasty PC software for your friendly ST? Condor's new emulator claims an operating speed four times that of the standard IBM-PC. We let Supercharger loose on the ST

Supercharger

MACHINE: ALL STs
PRICE: £299
FROM: CONDOR COMPUTERS
CONTACT: 0734 810066

You have probably the most popular home micro right there on your desktop. So why should you spend megabucks to buy an emulator which transforms your GEM-based friendly ST into an unattractive, aggressive old PC?

Well, the PC and its compatibles have been around for a long time. As with most IBM machines, Big Blue silicon is bought in droves by business persons the world over. Most of the major software houses support the computer and consequently, some of the best software in the world is available solely for the PC – there are simply no equivalents on the ST. Packages such as *Lotus 1-2-3, dBase* and *WordStar* place the PC as the foremost business tool.

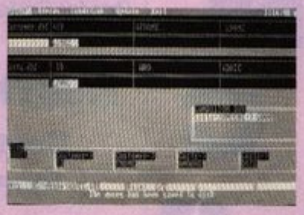
The ST, however, has at its heart a fast Motorola 68000 central processor enabling it successfully to emulate other computers. The ST marketplace has many emulator suppliers baying for your cash. The latest is *Supercharger* from Condor Computers whose advertising claims an operating speed four times that of the Standard IBM-PC. That's the spiel, what's the deal?

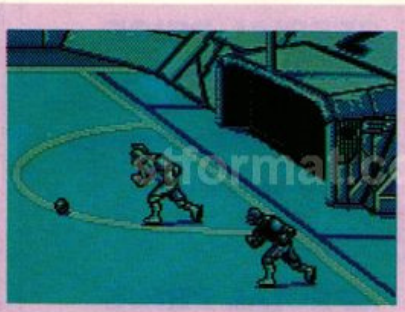
Supercharger, unlike many other emulators, does not fit inside the ST's case. Instead, the emulator is housed in a neat plastic case which sits on your desktop and connects to the ST via the DMA port (there's a through port so you can still attach peripherals such as hard drives and laser printers).

Power is received from the 5v rail in the mouse port via a splitter cable. Plug in the splitter cable, connect the mouse and *Supercharger* and you're ready to go. This is a neat solution to the problem of finding a socket for yet another 3-pin plug vying for space at your power outlet.

There's a reset switch at the front of the case which you hold down while booting the ST. Insert the accompanying utilities disk, click *Supercharger's* initialisation program, you're prompted for DOS, and before your very eyes, the ST is tranformed into a PC.

Supercharger supports the CGA and MDA PC screen display standards on both monochrome and colour ST monitors. Displays are rock steady and clear with both monitors and the latter provides glowing technicolour.





■ ***Supercharger*** **runs PC games such as** ***Test Drive II*** **(far left) and** ***Skateball*** **(above). Oh yes, and it also runs a little thing called** ***dBase IV*** **(left)**

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Using these standards you can run just about every program ever written for the PC.

To aid complex software such as spreadsheets, DTP and graphics manipulation packages, *Supercharger* is socketed for use with an 8087 maths co-processor. Plug in the co-pro and your calculation-intensive applications run lightning fast.

RODENT RAP

The foremost feature of the ST and the Apple Macintosh, and probably their biggest selling point, is that both computers use windows, mice, pointers and menus (WIMP) to provide an immensely friendly user environment. Once IBM and PC software houses realised how popular this interface was, they decided to provide a version of their own. Microsoft cobbled together a mouse which has subsequently become the industry standard for PC rodents.

In order to take advantage of WIMP-driven software, *Supercharger* converts the ST mouse so that it behaves just like its Microsoft cousin. After using Microsoft-compatible mice, I can say that when using the ST mouse, there's no degradation in performance and all software worked fine. Indeed, there actually seems to be a slight improvment in resolution.

Supercharger doesn't rely on the ST's RAM to provide space for PC programs, but has its own memory cache. This feature enables you to quit *Supercharger* back to the ST desktop, run an ST program, then return to PC mode resuming at the exact point you left off. Any program running before you quit is frozen ready for your return – truly the best of both worlds!

PROOF OF THE PUDDING

I tried *Supercharger* with lots of popular PC programs and all worked perfectly, without a hiccough: *SuperCalc, dBase III, Lotus 1-2-3* and several versions of *WordStar* running right there on the ST's monitor, faster than a standard PC.

Many prospective users are worried about using emulators when it comesto entrusting them with valuable data. If you create an enormous database and the emulator crashes, you're left without access to the data. There's no worries of this kind with *Supercharger*. It behaves predictably at all times. You can entrust data to it safe in the knowledge that it is unlikely to crash.

Sometimes there's just no substitute for a particular PC program. It's then that the emulator proves its worth. *Supercharger* only major drawback is its price, for these days £299 buys you a real PC clone complete with monitor, twin drives and keyboard. If you have no space available for a second computer, however, *Supercharger* is the answer. The device is fast and utterly reliable. Connect it to your ST and you have a thoroughbred clone ■

TECH SPEC

- V30 central processor running at 8MHz
- 512K internal RAM memory expandable to 1MByte
- CGA and MDA compatible display
- DMA through port
- ST mouse becomes PC Microsoft-compatible device
- Socketed for use with 8087 maths co-processor
- Supports both Atari colour and monochrome
- Supports Atari parallel port
- Supports Windows

FORMAT RATINGS

Features 90%
Supercharger comes with its own RAM and maths co-processor socket

Speed 90%
Norton rating of 4.2 compared to standard IBM-XT of 1.0

Ease of Use 75%
The installation procedure can be a little tricky for novice techno-tinkerers

Results 95%
Runs all of the popular PC software packages without a hitch

Format Value 65%
You can buy a real PC clone for £299, so perhaps *Supercharger* is a little overpriced

The Competition
PC Speed, £299, Gasteiner (01 803 7880; and PC Ditto, £69, Power Computing (0234 273000), though it's necessary to open the ST to install the former. The latter, being software based, is clever but incredibly slow

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PROGRAM IN C: PART 1

STORY
Warwick Grigg

The ST's a great games machine. But you want more, and we're about to give it to you. The C programming language has become the best-known and most highly rated of them all. It's fast, immensely powerful – and your ST loves it. Now we start the definitive beginner's series on the subject. And remember the* ST Format *promise: we* won't *be littering this series with bad C puns

There's no getting away from the fact that, while Basic may be the best known, it's C you really need. Not only is it the *industry standard* systems programming language, GEM itself – what you see when you switch on your ST – is written in C.

It's very *fast* too, because it's compiled: when you run a program you've written it's not translated into machine code as it goes along – as is the case with Basic, for instance – but turned into a brand new file that the machine has no trouble reading. Today C is used for operating systems, graphics, device drivers, communications and real time software – all areas where speed of execution is essential.

And if you learn C you can go out and program any machine. It's *portable*, too: so long as the code conforms to what's called the Kernighan and Ritchie standard (more of these chaps later), you can actually write it on one machine and run it on another. So you can write at home and then take it to school, college or work and continue it there.

Proof of this portability is the Unix operating system, written almost exclusively in C: it has been ported to more processor families than any other operating system. (The examples of C given in these tutorials, except for those using ST specific features, work on Unix. If you have the *Minix* ST operating system, which is very similar to Unix, you can try out the tutorials using *Minix's C* compiler.)

SOME CHARACTERISTICS OF C

Unlike languages such as Pascal, C is *permissive*. It lets you manipulate pointers and indirectly address memory structures, just as you can in macro assembler. C is block structured with comprehensive control statements such as `while`, `for`, `case`, `break`, and `continue`. A large program may be split up into several separately compiled modules, encouraging modularity. It also means that when you change one module of a program, you save time because you only need to recompile the module that has changed.

C's pointer (address) manipulation is very powerful. When combined with structures, you can manipulate tree structures and linked lists very easily. You don't need to count address offsets relative to the base of a data structure: C does it for you. You'll find that you can program very close to the machine level, so you can write efficient device drivers and other low level software in C.

C is widely used and C compilers are widely available. When you've learnt C on the Atari ST you'll be able to write efficient programs for the ubiquitous IBM PC (as long as you read up on the Intel 8086 segmented addressing). And if you produce a really useful program you may even be able to justify a pay rise!

TO DO IS TO LEARN

The best way to learn a programming language – like learning anything, in fact – is not to read about it, but to start using it: learn by doing. So over the next few months we are going to be learning C in depth through practical working examples and exercises. Even after this very first part you'll be able to write some simple C programs correctly. Then we shall explore C layer by layer, and as we go along you'll be able to write larger and more powerful programs.

A word of warning: this series necessarily assumes some knowledge of computing. If you've only just bought an ST (or had one bought for you), and if it's your first machine, you may find yourself out of your depth. Don't worry about this in the least. Play some games, try a little word processing, brush up on some Basic and, if you can, talk to other ST owners. Keep reading *Format* and eventually it will all begin to make sense. I promise!

If you don't have any experience of C programming, you very sensibly don't want to blow most of your computer software budget on a compiler. The solution is to get your hands on the excellent, and widely acclaimed, public domain *Sozobon C* compiler and *Gulam* shell *(see the end of this article for more information)*. I'll be giving easy to follow "recipes" using these tools so you can start learning C straightaway. Eventually you may want to buy a more sophisticated compiler with source level tracing and all the frills. Later in the ➤

SOZOBON C

This package (see Special Offers at the back of this issue) consists of two double sided disks containing public domain *Sozobon C* compiler (conforming to the Kernighan and Ritchie specification, an accepted standard); GEM bindings; Library Functions; *Gulam* shell; and RAM disk. In addition we've printed out documentation – always a great source of irritation if you have to do it yourself. The first disk is ready to use straightaway. The second contains the documentation and compiler source code (excellent educational material, by the way, for A level and degree course Computer Science).

`A-Z 0-9` – The key you type is inserted at the cursor position, and then the cursor advances one position
`[arrow keys]` – The cursor moves in the direction of the arrow key
`[Return] !l!!!!!!la` – A new line break is inserted at the cursor position and the cursor moves to the start of the new line
`[Backspace]` – The character to the left of the cursor is erased and the cursor moves back one position
`[Undo]` – Save the file and exit from the editor

■ Using the *Gulam* editor

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series, when the information will be of use to you, we'll be comparing the commercial C compilers, so you can choose the one closest to your needs when you move up market.

GULAM AND THE *SOZOBON C* COMPILER

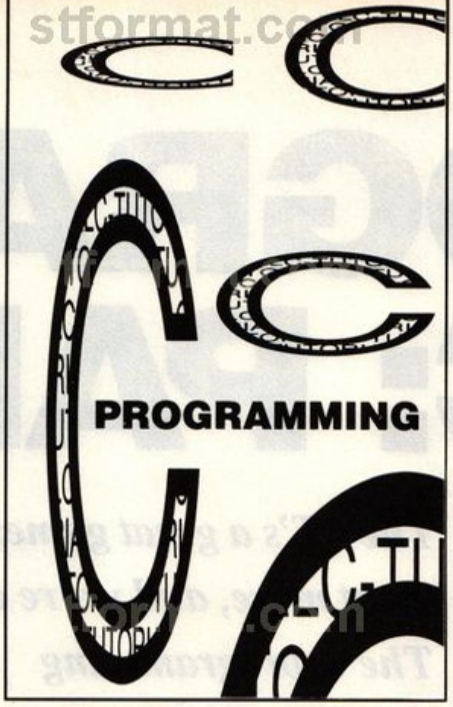
To start, you need either a double sided disk drive or a hard disk. Double sided disk drives, cost about £80, and are rapidly becoming a must for new programs. One Mbyte of memory makes compilations quicker and you can compile larger programs, but you could get by, just about, with 512K. (If anyone is programming in C using only 512K and a single sided drive, please write in and tell us how you do it!) Incidentally, I use an Atari 520STFM, upgraded to 1Mbyte with a double sided disk drive, and I can compile programs thousands of lines long.

With the C compiler we refer to at the end of this article, one of the disks is set up ready to use, complete with RAM disk software. If you are using your own C compiler, however, you probably need to set up a run time disk before you are ready to compile the example programs. Make sure you become familiar with basic editor operations and command line entry before you start to type in C programs.

Gulam provides a command line interface similar to that of MSDOS. Conveniently it comes complete with built-in screen editor. (See the tables showing some of the most useful commands.) You can get by with these for the time being. The documentation files provided with *Gulam* and *Sozobon C* explain the features in more detail.

LET'S DO IT!

OK, so let's do some programming, compilation and testing. We're going to work with a simple C program, "example1.c," which is on the



Cover Disk, as well as being listed below. First of all, let's compile and run it. Then we'll look at the program in some detail: it's worth paying very close attention, since it demonstrates a good deal of the character of C.

First copy the file "example1.c" from the Cover Disk to your work directory. From GEM run **gulam** by opening the **GU_UK.PRG** file. When this presents the command line prompt enter

cc -O example1.c -o example.prg

This compiles the program. Now enter

example

This runs the program, which then waits for input. Now enter

hello

The program displays

There are 2 vowels in the word

Then the program exits, returning you to the *Gulam* command line prompt. That was easy!

COVER DISK PROGRAM EXAMPLE1.C

```
1  /* Example1.c : Prints the number of vowels in a word */
2  R#include "stdio.h"
3  int vcount;    /* Declare a variable of type integer called
4                    "vcount" */
5  main()    /* Program starts here ! */
6  {
7      do_count();          /* call function "do_count" */
8      printf("There are %d vowels in the word\n", vcount);
9                           /* print out the result */
10     return 0;            /* program finished OK */
11 }
12 do_count() /* count the vowels */
13 {
14     int c;    /* temporary variable to store each
15                  character read */
16     vcount = 0;    /* initialise vowel count */
17     c = getchar(); /* get the first character */
18     while ( (c>='a') && (c<='z') ) {
19         if ( (c=='a') || (c=='e') || c=='i' || c=='o' ||
20              (c=='u') ) {
21             vcount = vcount+1;  /* one more vowel found */
22         }
23         c = getchar();
24     }
25 }
```

■ **Here's the program example1.c on the Cover Disk you've just compiled and run**

Now look at Example 1 *(see box)*, the program you've just compiled and run. As you discovered, it reads one word from its input and then prints out the number of vowels in that word. To make the program simpler the word must be entered in lower case. This doesn't sound too exciting, but if you follow the description carefully you'll learn a lot about C. The program is marked with line numbers so that I can refer to each line. But C programs don't actually have line numbers and if you enter them the program won't compile. Let's go through the program.

Line 1 is a comment: comments start with the delimeter **/*** and end with the delimiter ***/**.

cd a:\dir1\dir2 – Changes the current working directory to dir2 under directory dir1 on drive A

ls -l – Lists the files in the current working directory

cp a:\dir1\file1 file1 – Copies file file1 under directory dir1 on drive A: to file file1 in the current working directory

ue fred.c – Invokes the editor for file fred.c

cc fred.c -o fred.prg – Invokes the C compiler on file fred.c, creating program fred.prg

fred par1 par2 – Invokes the program called fred.prg, passing it par1 and par2 as arguments

fred < file1 > file2 – Invokes the program called fred using file1 as the data for standard input and redirecting standard output to file2

■ **Examples of *Gulam* command line usage**

Line 2 is a directive which tells the compiler preprocessor to read the file **stdio.h** and include the contents in our program as if we had typed it all in. The **stdio.h** file tells the compiler about the I/O library functions we'll be using (ie **getchar** and **printf**).

Line 3 declares an integer variable named **vcount**. Variable names can be up to 8 characters long, and may contain alphabetic characters, digits or the underscore character. They should start with an alphabetic character.

The variable **vcount** is used to store the number of vowels in the word. An **int** can hold positive or negative whole numbers. Although the range is implementation dependent, most Atari ST implementations allocate 16 bits to an **int**, giving a range of -32768 to 32767. So an **int** is big enough for **vcount**!

Line 5 declares a function named **main**. A C function is similar to a function in structured Basic. In C, **main()** is special because this denotes where the author wants the program to start.

A **{** character introduces the body of the function **main()**. Each **{** must be matched by a **}** and in this function, the **}** at line 11 denotes the end of the code associated with **main()**.

The first real executable statement of the program appears at **line 7**, and is a call to the function **do_count()**. The processor then executes the instructions of **do_count()** starting at **line 11**, and when the processor reaches the end of **do_count()** at **line 25** the ➢

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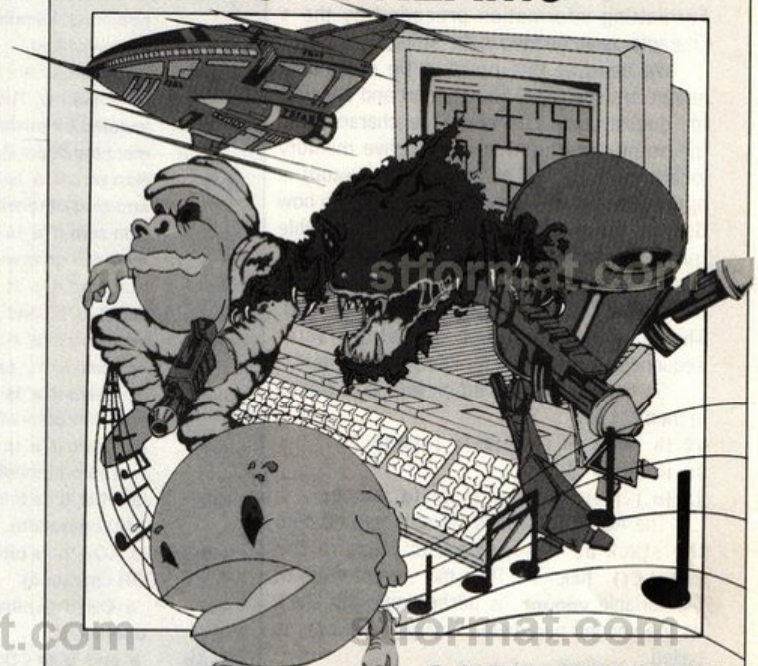

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processor then returns to **line 9** of `main()`.

By the time we reach **line 8**, `do_count()` has stored the number we want in `vcount`, so all we have to do is print the decimal value encapsulated in an English sentence. We pass this information to the I/O library function `printf()`. The first parameter to `printf()` is a string containing text to be printed. Formatting information preceded by the `%` character is embedded in the string.

We need at this point to be clear how strings are specified. Strings start and end with the double quote character. The characters in the string are stored in consecutive memory locations and a null character (i.e. `hex00`) is appended to mark the end of the string. So how do you get control characters or the double quote character itself in a string? This is illustrated by the `\n` sequence which denotes the newline character (`hex 0A` on the Atari ST). The table lists the other special character sequences you can use for special characters.

So the string specified on **line 8** is placed in memory as:

```
|T |h |e |r |e | |a |r |e | |% |d |
|v |o |w |e |l |s |
|i |n | |t |h |e | |w |o |r |d |0A|00|
```

The ADDRESS of this string is pushed onto the stack as the first parameters to the `printf()` function. Then the current value of the variable `vcount` is pushed onto the stack as the second parameter. Finally `printf()` is called.

The I/O library function `printf()` starts printing the characters at the beginning of the string until it comes to the percent character. The sequence `%d` tells `printf()` to print the next `int` parameter on the stack as a decimal number. So after printing `vcount` in decimal, `printf()` then carries on printing the rest of the string up to but not including the NUL character. The lower level I/O library routines print the newline character as carriage return followed by line feed. In addition to `%d`, other formatting functions are available, as shown in the table *(see the box)*.

Functions can return a value. On **line 10**, `main()` returns the value 0 to the operating system to indicate that the program has terminated correctly. Consistent with C's permissiveness, you can choose not to return a value from a function. Furthermore, even if a function does return a value, the caller can choose to ignore it (as we did on **line 8**).

Line 12 declares the local variable `c`. Unlike `vcount`, this is for the sole use of statements within the `do_count` procedure and allocates storage for the variable which only has a "life" during the execution of `do_count()`. Therefore `main()` and any other function within the program (if there were any) cannot access the variable `c`. The temporary nature of the storage for `c` means that if you tried to save data in `c` between one call of `do_count()` and another you would get seemingly random results! In practice such variables are placed on the stack. The purpose of local variables is to minimise memory usage, to facilitate recursion, and to keep the C code tidy.

On **line 16**, `=` denotes the assignment operator. On `line 17`, the `getchar()` is called to obtain the next character from standard input. The function `getchar()` is a standard I/O library function which returns the next character from the standard input. Normally the standard input is the keyboard input, but the standard input can be redirected so that a disk file is used. If standard input reaches end of file, `getchar()` returns the special value `EOF`. This is why `getchar()` returns an `int` instead of a byte value, so that `EOF` can be returned without conflicting with the values in the Atari ST character set.

The `while` statement loops between **line 19** and **line 24**. Before each execution of these lines the expression is evaluated. If this evaluates to zero, the loop terminates and control jumps to `line 25`. So in C, to improve efficiency, FALSE is zero and TRUE is any non-zero value. The expression `c>=a` means "c is greater than or equal to the binary representation of the character 'a.'" The token `&&` means "CONDITIONAL AND." The expression `( c<='z' )` is only evaluated if the expression `( c>= 'a')` is TRUE. This form of AND is more efficient than bitwise AND (which is represented by the token `&`) because expression evaluation takes a shortcut, as it were. When you are not sure of operator precedence it is a good idea to put brackets round subexpressions, so follow this style until you complete the course.

On **line 19**, we are checking whether `c` contains a vowel. The token `==` means "is equal to" and the token `||` is the CONDITIONAL OR operator. Take care with the `==` operator as it is so easy to type `=` instead. The statement `if (a=b)` is valid C, and means "assign b to a, then if a is non zero...," which is something quite different.

An `else` condition can be used with `if`:

```
if (expression) {
    statement1
}
else {
    statement2
}
```

On **line 21**, the expression `vcount+1` is evaluated and this is then assigned to `vcount`. Other operators that you can use with integers are shown in the table below. Operators within each group have equal precedence but groups are listed in decreasing order of operator precedence.

The unary operators (for example, `!`) and the assignment operator (ie `=`) group from right to left when operators of the same type are adjacent. For example,

`!++var`

evaluates to

`!(++var)`

The remainder of the operators group from left to right. For example,

`a-b-c`

evaluates to

`(a-b) - c`

■ In next month's instalment tutorial we explore more examples of data declarations (multi- dimensional arrays, for instance, floating point numbers, pointers and structures), passing parameters to functions, more of the I/O library functions, and the rest of the commonly used control statements. Stay tuned for a full exploration of programming in C in our on-going series.

-expr	0 - expr
!expr	expr == 0
~expr	One's complement of expr
a*b	'a' multiplied by 'b'
a/b	'a' divided by 'b'
a%b	remainder after 'a' is divided by 'b'
a+b	'a' plus 'b'
a-b	'a' minus 'b'
a<<b	'a' shifted to the left by 'b' bit positions. Vacated bit positions are zero filled.
a>>b	'a' shifted to the right by 'b' bit positions. The contents of vacated bit positions are machine dependent.
a<b	Non zero if 'a' is less than 'b,' and zero otherwise
a>b	Non zero if 'a' is greater than 'b,' and zero otherwise
a<=b	Non zero if 'a' is less than or equal to 'b,' and zero otherwise
a>=b	Non zero if 'a' is greater than or equal to 'b,' and zero otherwise
a==b	Non zero if 'a' is equal to 'b,' and zero otherwise
a!=b	Non zero if 'a' is not equal to 'b,' and zero otherwise
a&b	'a' AND 'b' (a bitwise LOGICAL AND operation)
a^b	'a' XOR 'b' (a bitwise EXCLUSIVE OR operation)
a|b	'a' OR 'b' (a bitwise LOGICAL OR operation)
a&&b	'a' and 'b' (a CONDITIONAL AND operation)
a||b	'a' or 'b' (a CONDITIONAL OR operation)
var = expr	The expression is evaluated and assigned to the variable 'var'. This value is then also the result of the expression.

■ Operators: expressions followed by operations

Sequence	Result
\0NUL	character (hex 00)
\ddd	The character that has an octal value of ddd
\b	Backspace
\f	Form feed
\n	Newline, i.e. Line Feed
\r	Carriage return
\t	Horizontal Tab
\'	Single quote
\"	Double quote
\\	Backslash character (nb!)

■ Special character sequences for strings

%c	The next parameter is printed as a single character (so 65 would be printed as A)
%d	The next parameter is printed as a signed decimal number
%o	The next parameter is printed in octal
%x	The next parameter is printed in hexadecimal
%%	A single percent character (%) is printed

■ printf formatting sequences

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LIVING IN A BOX 4

STORY *Mark Pickavance*

Are you getting bored with flat, detail-less objects? Do you yearn for more pleasing visual forms? Are you using* Cyber Texture *in your CAD? It's time you explored the possibilities of textured objects and - gasp - textured animation

This month's *Cyber* tutorial is specifically for those CAD users who want to develop complex scenes and animate them using *Cyber Studio, Cyber Control, Cyber Sculpt, Cyber Paint* and *Cyber Texture*.

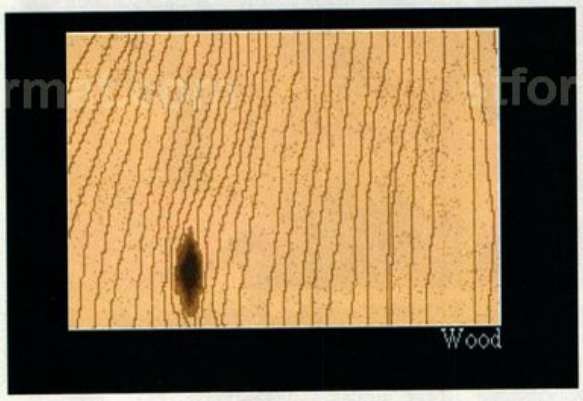
The objective is to fashion a detailed living room in CAD with the following objects in it: a chair, television, lamp and rug. It's an exercise in producing a group of related objects using a variety of software tools to make them as effective as possible – considering the 16 colour limitation of low-res graphics. The ultimate aim is to compose the objects within a scene and animate them. This is how I got on.

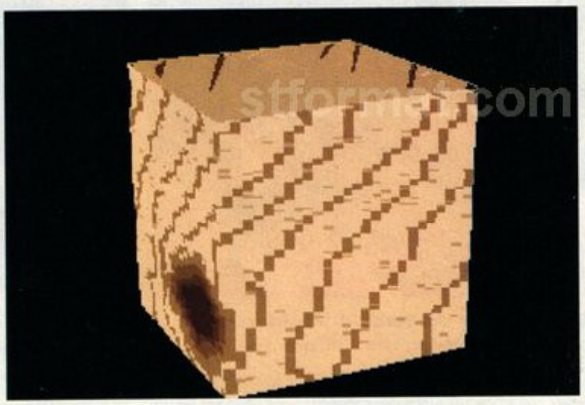
UNCONTROLLABLE SKEWING

After making a small paper sketch to crystallise my ideas about exactly what I wanted to do, I launched myself into the wholesale manufacture of furniture. Using the chair as a starting point, I considered various construction methods. The chair shape I had in mind lent itself to using the extrude tool. It was by necessity in two parts – both made in extrude and connected later in the 3D editor part of *Sculpt*. This design seemed far too rigid – I wanted something more laid-back and stylish. Nothing for it but to load the chair into the 3D editor and skew uncontrollably.

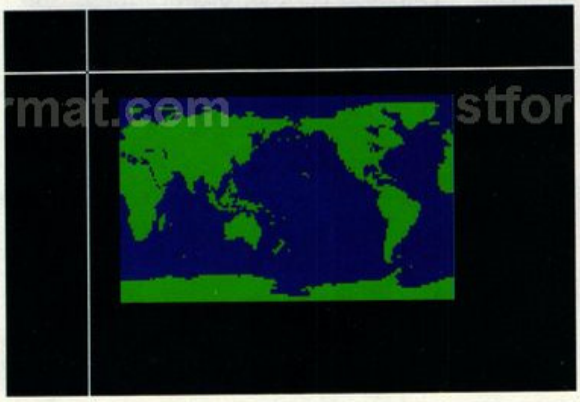
The extrude tool is very useful for geometric objects and played a major role in making the TV. The lamp was a simple template spun in spin. If memory had not been a consideration then I would have spun more than twenty segments. The more segments used in the spin the less likely that the lamp will appear to have flat ➤

CYBER TEXTURE IN ACTION





■ **Using *Cyber Texture* you can take any two dimensional image (left) and map it onto the surface of a whole host of bizarre objects – we chose the cube (right) just to keep things simple**



■ **The flat Earth assumption (left) is swiftly corrected by mapping the image onto a globe (right). If only Columbus had had *Cyber Texture* at his disposal**

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surfaces (i.e. the lamp is circular in cross-section and not a polygon).

Creating a patterned rug proved quite straightforward using the most basic construction tools within *Sculpt*. After all the items were finished I then merged them into one file, taking the opportunity to iron out any problems with the comparative scale of things. As a rule I always make an object as large as possible to begin with and then re-scale it after I'm pleased with the design. This way avoids awkward adjustments and integer maths inaccuracies if any element is rotated.

My collection of pre-fab DIY is quite pleasing but doesn't exactly strectch the boundaries of computer graphics on the ST. The TV should at least have an image on-screen – or better still, some animation.

LET'S GET TEXTURISED

To understand how *Cyber Texture* works, you must first realise that all objects in CAD are constructed from a basic unit – the vertex – a three dimensional coordinate. These are joined by triangular facets which in turn make up polygons which have edges – or lines around them. *Cyber Texture* can take a 2D image and make a surface of polygons from it, calculating all the vertex and facet data as it does so. Although very clever this does have the drawback of producing very big objects.

To demonstrate this I took some *Texture* pictures supplied with the package and wrapped them onto a cone. The sizes of the .3D2 file created is displayed under each image. The *Texture* program enables you to take any low-res colour image or animation and map it onto the surface of an object. The range of shapes is quite diverse, anything from cylinders to a mobius strip. I'm not totally convinced of the value of some objects – they're just too bizarre. One drawback is that you cannot load an object created outside *Texture* and then map *Texture* onto it. I don't like to be critical of any part of the *Cyber* series, no other home computer has any equivalent software. However, the thinking behind the method used by *Texture* seems somewhat illogical. My approach would have been to write *Texture* as a desk accessory which could load images or animation and render them onto specific polygons when CAD does a SUPERVIEW. This would have been more practical and produced better results.

DID THE EARTH MOVE FOR YOU?

One of the images on the *Texture* disk is a map of the Earth. Within the user guide it shows how you can use this *Degas* format picture to produce a full 3D object. I followed the simple instructions and mapped the "flat" Earth onto a sphere, producing a very accurate globe. The only snag was that this 3D object was over 200K in size. This meant it was far too big to be practical and much more complex than I needed. The *Advanced Techniques* section of the manual gave me some tips on solving these difficulties.

I reduced the *Big World* image to a quarter of its size using *Flair Paint* (any art package with a good "stretch" option will do). When rendered onto a sphere now, it only produces a 60K file, which is more realistic. I then wrote a small piece of *Cyber Control* code to move the camera around the object to simulate rotation.

CYBER MAKES THE WORLD GO ROUND

```
; This code assumes the World is in the center of the Universe
; that the World object is already loaded
; and that Zoom and Perspective have been set in CAD.
; AS THE WORLD TURNS BY MLP
VIEW SOLID:DRAFT
WATCH ON
RSTART "A:WORLD",M
RFACTOR = 0
FOR LOOP= 0 TO 35
CAM1 RFACTOR,0,0
SUPERVIEW
RECORD
IF RFACTOR = -180 THEN RFACTOR = 180
RFACTOR = RFACTOR -10
; The last bit is a "work around" because the CAM1 command cannot
; take numbers smaller than -180 or bigger than 180 degrees  NEXT LOOP

RSTOP
A spinning globe!
```

GLOBAL RECONSTRUCTION

You may be wondering why I moved the camera and not the object. The simple answer is that it's quicker because fewer calculations are involved – take my word for it.

The WORLD.DLT file generated was then reprocessed through *Cyber Texture* to make 36 ➢

THE ULTIMATE LIVING SPACE

■ The trendy pre-Habitat furniture is constructed using the extrude tool

■ The globe on the television rotates in true BBC fashion

■ Using the *Cyber Control* code sends the camera roaming around the scene

■ This tasteful rug is easily made in *Sculpt*. Would you live in a room like this?

■ The armchair was constructed once and then duplicated

■ Try enhancing the scene by creating walls, floors and other essential objects

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objects (SCREEN00 to SCREEN35 inclusive). Each was a flat globe which would become the television image when merged with the rest of my scene.

When I first merged a screen object in the scene, it was too large, in the wrong place and incorrectly orientated. Before I had really thought this problem through, I considered moving each globe and re-scaling it. I even considered writing code to do this for all 36 globes. Dumb idea, I know. It was much easier to move all the objects in the scene and re-scale them than tinker with 36 CAD objects.

While I was doing this I re-composed the objects and duplicated the chair, so I now had two. Because the screen would by definition be in the right place I could now write some "simple" code to move the camera around the scene while loading successive globes into each frame.

One additional refinement I tried to add at this stage was to move the light source so that it gave the impression that the lamp was indeed illuminating the scene. But when I attempted this I couldn't get the light in exactly the right place. The poor illumination routine is a weakness of CAD and *Cyber Control*.

It's now time to fly the camera around the scene. What's required is a variation on the basic routine I used to make the World rotate. In fact this whole thing is basic until an annoying deficiency of *Cyber Control* language comes to light. For a reason known only to Mr Hudson *Cyber Control* doesn't handle text strings – at all.

The programming requires that I loop around 72 times and load in (and delete after showing) 36 different screen objects. In a standard basic type language I would have created a text string SCREEN and added it to the loop variable – after changing that to a string. Then on each successive loop I could have LOADED each string. Without string handling this was an impossible task. In my desperation I discovered that *Cyber Texture* includes some examples of using objects created from animation sequences within *Cyber Control*. No great surprise – for each load a separate "IF loop = x LOAD3D<filename>" is defined. This is what's known as "in-line" or sledgehammer programming. Not eloquent, or economical – just functional. The code (see right) includes many similar lines, but this was the only possible way to do it.

GETTING WIRED

On my first attempt CAD was set in DRAFT mode. This produced lots of graphic mistakes. The objects are too close together and CAD makes a hash of the exact order they should be drawn. The only solution is to do it again in FINAL mode. This takes a long time but fixes most of the glitches. Even using FINAL I wanted to clean up the images. This was a tedious but rewarding exercise in *Cyber Paint*. Not only did the animation look more refined but I could mess with the colours. It also made the animation 20K shorter: every little helps when the .DLT file for this sequence is over 900K (only 280K as an SEQ).

Even before I completed the above example I was already considering how I might enhance an already good animation. One idea that I tried was creating the walls and floor – but animating them in wireframe. CAD doesn't let you mix solid and wire objects, but you can produce two animation sequences – or more – and overlay them in *Cyber Paint*. This isn't something I've experimented a great deal with so the results should be, at the very least, interesting.

Those of you who are less ambitious and decide to copy my example could try changing things. Make the room into a bathroom or kitchen. Add walls with patterned wall paper or add digitized pictures to the TV. The only restrictions are you imagination, and – because of the methods employed – the amount of RAM in your ST.

■ **In next month's tutorial I'll be animating a walking robot. I hope by then I'll have some idea exactly how to do this. See you then.**

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The *Cyber Studio* series is available from Electric Distribution 0480 496666.

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THE ROOM THAT TURNED

```
AS THE ROOM TURNS TURNS
NEW
LOAD3D"C:SCENE.3D2"
PERSPEC 999: ZOOM 170
VIEW SOLID:DRAFT
WATCH ON
RSTART "C:ROOM",M

RFACTOR = 0
FOR Mloop= 0 TO 71
IF Mloop < 36 THEN loop = Mloop
IF Mloop > 35 THEN loop = Mloop - 36
IF loop = 0 THEN
MERGE3d"C:\CAD\W_DATA\SCREEN00.3D2"
IF loop = 1 THEN
MERGE3d"C:\CAD\W_DATA\SCREEN01.3D2"
IF loop = 2 THEN
MERGE3d"C:\CAD\W_DATA\SCREEN02.3D2"
IF loop = 3 THEN
MERGE3d"C:\CAD\W_DATA\SCREEN03.3D2"
IF loop = 4 THEN
MERGE3d"C:\CAD\W_DATA\SCREEN04.3D2"
; and on and on and on ..... until
IF loop = 31 THEN
MERGE3d"C:\CAD\W_DATA\SCREEN31.3D2"
IF loop = 32 THEN
MERGE3d"C:\CAD\W_DATA\SCREEN32.3D2"
IF loop = 33 THEN
MERGE3d"C:\CAD\W_DATA\SCREEN33.3D2"
IF loop = 34 THEN
MERGE3d"C:\CAD\W_DATA\SCREEN34.3D2"
IF loop = 35 THEN
MERGE3d"C:\CAD\W_DATA\SCREEN35.3D2"
CAM1 RFACTOR,10,0
SUPERVIEW
RECORD
IF loop = 0 THEN  KILL Screen00
IF loop = 1 THEN  KILL Screen01
IF loop = 2 THEN  KILL Screen02"
IF loop = 3 THEN  KILL Screen03"
IF loop = 4 THEN  KILL Screen04"
; the same again, and again ,and again.
IF loop = 31 THEN  KILL Screen31"

IF loop = 32 THEN  KILL Screen32"
IF loop = 33 THEN  KILL Screen33"
IF loop = 34 THEN  KILL Screen34"
IF loop = 35 THEN  KILL Screen35"
IF RFACTOR = -180 THEN RFACTOR = 180
RFACTOR = RFACTOR -5
NEXT Mloop
RSTOP
; Load-sa-movin-pix
```

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THE DATA STORE

STORY *Richard Monteiro*

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Unfortunately databases aren't the sort of program you can pick up and start using constructively from the outset. Instead, it's necessary to inform the database of the quantity and type of data it can expect – and then how it is to display the information when you want to retrieve it.

Before you can even attempt to do that though, *Prodata* needs to know about your system. A separate program lets you configure the system and inform *Prodata* of your storage devices, printer type (there are 67 to choose from), the colours you'd like to use (not applicable in high resolution), keyboard language (UK, US, French, German, Spanish, Italian, Portuguese or one of many others), database defaults (insert/overwrite mode, maximum number of fields, maximum field length and so on) and much more.

DOUBLE ENTRY

With the configuration out of the way you can think about the type of data you want to store and how much of it there is. From *Prodata's* main menu you find all the necessary options to create, edit or show a database. To construct a database you'll need to answer another gruelling set of questions.

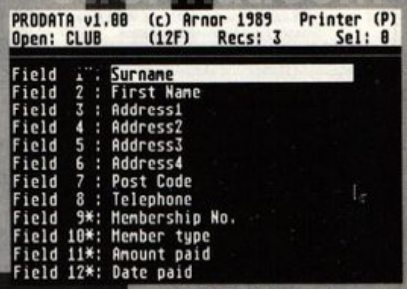
First you must decide the name of the database – you can't be too choosy because you've only got eight characters to play with. Next you'll be asked whether duplicate entries are allowed. There are instances when you won't want the same entry appearing twice, but in most cases it's vital that duplicate entries are allowed. For instance, it wouldn't be very useful to only permit one person called Smith in a name and address database!

At the next prompt you're asked for the length of the index. This is a request for the number of characters in a field that are to be included in the index. The index is used for sort-

JARGON KILLERS

Data: information stored on a database
Database: a collection of information. When applied to computers, it refers to a program which stores information and provides ways of searching for and displaying the data
Data file: a file containing all the records in a database
Field: a single item of data (for example a name, a telephone number or a postcode)
Record: consists of *all* the fields relating to one item of data. In a name and address database, for instance, a record would consist of name and several address fields

■ Just one of the 99 ways in which you can view the records entered into the database



■ Fields can be altered long after the database has been set up. Up to 300 fields are possible, and each can consist of 999 characters

■ From the main menu you can create a database and enter data into an already existing one

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ing purposes, so the number of characters present should be enough to guarantee that *Prodata* can differentiate between two or more similar entries. Having a large index, unfortunately, means that searching and storing slow down.

Finally you must enter the field names. If you're creating a name and address database you might use things like forename, surname, company, address1, address2, address3, postcode, telephone number and so on.

With the database creation stage out of the way, it's time to enter the information. Easy. Each field name will appear and wait until you've typed something into it. But what makes using it so simple is that you can move between fields very easily. There are also special editing keys. It's possible to swap the position of two characters (why not two words as well, Arnor?), convert characters from upper case to lower case and vice versa, and toggle between insert and overwrite mode.

Filters provide a way of selectively viewing your data. A set of conditions are entered and only those records which obey them are displayed.

FLOPPY ACCESS

Prodata allows you to create your own set of layout structures so that data may be printed or displayed using a variety of different formats. A layout can be up to 150 columns wide and 70 lines deep. Since this is wider than one screen, scrolling is permitted to let you view different areas.

Variables can be used in a layout and these can be programmed to hold the result of operations performed on the different fields. A variety of maths operators can be used with rounding up and down commands so that you can manipulate the field data as much as you like.

Before going any further, it's time for a few statistics. Up to 999 characters are allowed per field, 300 fields per record are permitted, five indexes are possible, there is a choice of 99 layouts, 20 filters are available, and records per database and database size are restricted only by disk space.

Unless you've got a hard drive – or work from RAM drive – *Prodata* is painfully slow because it loads each record as it's needed and saves each record as it's created. A RAM drive utility is included with *Protext;* one should be included with *Prodata*. Honestly, constant floppy access is really very annoying. With all the memory available in an ST, it wouldn't be difficult to incorporate some sort of caching system.

If you use *Prodata* from a hard drive, and intend only to store and sort alphanumeric characters in the conventional database sense, there is nothing that can touch it for speed, flexibility and range of features. Think, though, what 16-bit is supposed to stand for – graphics, sound, processing power. *Prodata* certainly uses the processing power, but graphics and sound are forgotten. There are databases available for the ST that can store and sort sounds and graphics. *Prodata* is a missed opportunity as far as these are concerned.

There's no going back to text-only machines, or even machines with limited graphic capabilities, so it's a shame Arnor has not started the wheels turning now. ■

FORMAT RATINGS

Features **89%**
Comprehensive as far as conventional databases are concerned, but doesn't try anything clever with graphics or sound storage

Speed **68%**
If used from a hard drive or RAM drive then it's unbeatable (90%+), but for floppy work it's dismal

Ease of Use **92%**
Whether you've used *Protext* or not you'll find it intuitive

Results **90%**
You get out what you put in. If you put in the effort, anything is possible

Format Value **81%**
As a serious tool used on serious – make that expensive – hardware it's excellent

The Competition
Superbase Professional £249.95; Precision (01 330 7166). *Data Manager Professional* £69.95; Electric Distribution (0480 496789). *DGBase* £49.95; Digita International (0395 270273)

As we went to press Arnor released details of *Prodata* v.1.01, free to all users of v.1.0 and featuring a range of enhancements, including multiple line headers and footers, multiple line fields with word wrap and proportional right justified printing, variable height layouts, use of mouse to speed up layout editing, string search, scrolling of long layouts in display mode and a number of other details. The price is the same.

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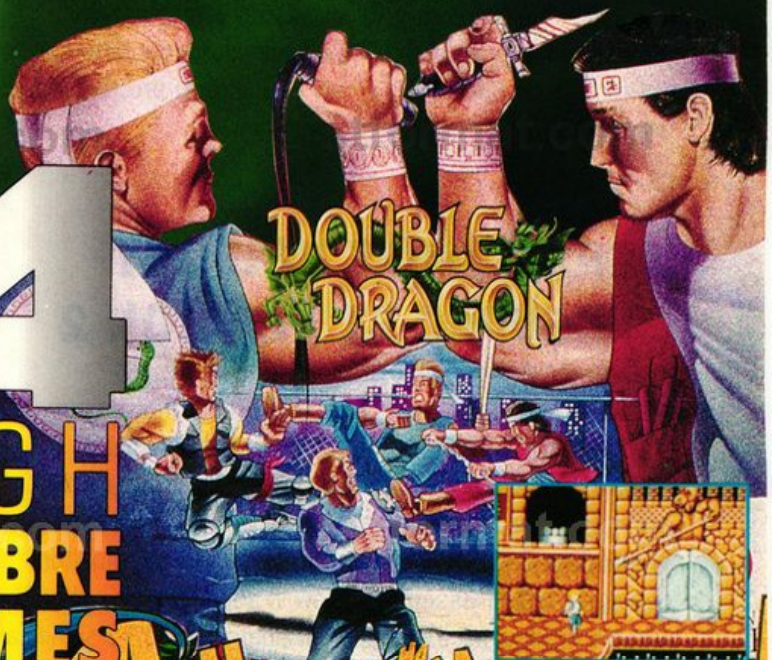

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UNIVERSAL EDITORS

STORY *Jon Bates*

The latest trend in synthesizer voice programming, these smart programs work with any synth, set up libraries of sounds and in the best of all worlds actually program those sounds for you. We check out the software available

Universal patch editors are nothing to do with the state of your jeans; a patch is a sound or group of sounds on a synthesizer, and a universal patch editor does what it says. Take any synth and connect it to a universal editor and the program should be able to interrogate the internal memory to such a degree that it can configure itself to store libraries of sounds from that instrument. In the best of all worlds it should also be able to program those sounds.

DIVE INTO THE EXCLUSIVE

A little bit of background: when there were relatively few synths around it was the norm for a specific program to be developed in order that the user could dive into the Exclusive data and program the sounds from the computer screen – preferably with lots of graphic help. This was an improvement on trying to program the instrument from its front panel with multi-function buttons and a miniscule LCD.

This was fine when there were only a few major synths available. However, one of the nice things about MIDI equipment is that it doesn't have built-in obsolescence. It may go out of fashion but the fact remains that it's still very usable and will remain part of a larger system.

The problems begin when you decide to buy another instrument. Voicing software has never been terribly cheap so it's an expensive game keeping a stock of sound libraries and programs for each piece of equipment you use. Many instruments now come with the enticement of more sound cards than you can buy; a marketing policy rather akin to buying a pair of shoes and then getting flogged the range of polishes and anti-scuff garbage. There may be a more serious problem; a complete lack of voicing software available for your piece of gear.

FRISBEE COMPETITION

A secondary problem raises its head. Let's imagine that you're half way through working on a piece on a sequencer. You need to pull in a sound or tweak one already in the synths memory. More than likely you'll have to stop what you're doing, save the music, reboot with the voicing software, load in the libraries of sounds and then find the sound you want. Do this a few times and the chances of the software entering a frisbee competition are getting pretty high.

What you need is a program that can reside in the memory and be called in at the same time as the sequencer. Whether or not this is true multi-tasking is debatable but it saves a lot of pithering about. This will almost certainly not find favour with 520 owners because they're likely to run out of memory.

UNIVERSAL SUMMARY

To summarize; the advantages of a universal editor are:

1) You don't need instrument specific software and therefore save yourself lots of expenditure on different pieces of software.
2) It provides a very cost effective method of assembling vast libraries of sounds.
3) In the majority of cases they remain resident while your main sequencer is running.

On the down side however:

1) Configuring the software for your instrument may be a pain – especially if you have something fairly obscure or unpopular (ever wondered why it was unpopular eh?).
2) Having it resident while sequencing may well mean you run out of memory rapidly.

INTIMATE DETAILS

How the software is organised is going to be very much along the same line. The program itself is pretty open ended, so to make it fit your instrument it will need a template – rather like a data base. This template will contain all the information on the intimate details of the synth and thus communicate at a very high level – pulling off voices and allowing you to re-order them and save them to disk.

The most popular synths are usually catered for by a series of templates included with the main program. New or obscure instruments will require some programming on your behalf: you have to look up the MIDI Exclusive data in the back of the manual and define your own template. This may or may not be a bundle of joy depending on the program.

That's the outline of it – now on to two programs that have just been released to cope with these problems.

Chameleon

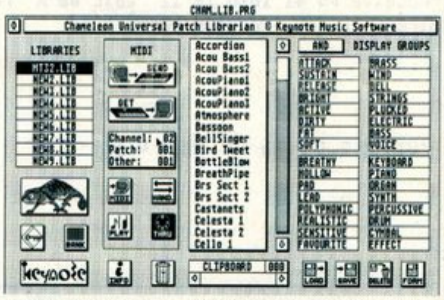
MACHINE: ALL STs
PRICE: £89
FROM: KEYNOTE SOFTWARE
CONTACT: 0761 32610

Chameleon is a librarian, and when coupled up to any synth it has the ability to pull off the voices and organise the data into files. In its present state it cannot program the voices themselves, but when you have instruments that can have several types of memory for voices and a large number of sounds to boot, the way that *Chameleon* is arranged makes it a very flexible friend.

Many instruments have not only a straightforward list of voices available but can be set up in a number of differing configurations either for playing live in various layered combinations, or for playing via MIDI from a computer. *Chameleon* can become a desk accessory for any GEM based sequencer and Keynote reckon that there ain't a decent sequencer around that won't work with it. As the program is written in machine code and only takes up about 50K of memory this is quite feasible.

SUBJECTIVE SOUNDS

On loading, you get the main screen. The library slots – of which you can have nine resident – are on the left-hand side of the screen. Next across the screen is the MIDI control column which lets you send to, and receive from, the MIDI instrument. The channel and patch number are also displayed and can be altered. The central column shows all the patches in the



■ **The main page of *Chameleon* – the list of patches in the centre are sorted by the definitions to the right**

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selected library and you can scroll through these in the time-honoured fashion by dragging the scroll icon up and down. Underneath the main list is a clipboard which is used for assembling new libraries from existing ones.

The display groups section on the right seems a clever idea at first. You ascribe to each sound in the library various characteristics: breathy, acoustic, percussive, synth, realistic, bass, and so forth. You can even make up your own categories to define sounds. The idea is that having assigned descriptive characteristics to each voice, you can then call them up by simply defining the sort of sound you want.

In theory this is great, but in practise it's a very time consuming business defining each sound – it would have been nice to copy characteristics from one sound to another rather than having to start afresh each time. I found it easier not to reinvent new terms for describing sounds. The problem is not the software on the screen but the software between your ears! One day a sound seems synthy and the next day the same sound can be used as a realistic one – depending on the overall context.

The idea for sorting out voices in this way deserves credit. Sounds are auditioned via the mouse – the position of the mouse on the screen means either high or low pitch, hard and soft velocity, and you can play either single notes or a chord. You can also create what are called "sub-patches;" under each voice in the current library you can group together voices that complement or closely match it. Not extra to the library itself but it provides another quick method of cross-referencing sounds.

Chameleon comes with a range of library details covering nearly every major synth and sampler. But if you wish, you can set up your own file. It was at this point that the manual and I fell out. Despite having the MT 32 file instructions on screen and also having the MIDI data for that instrument in front of me it was still as clear as mud how I was to set up file requests.

I'm sure the concept was very easy and to help you there's a short cut using the programs own MPL (MIDI Programming Language) with plenty of on-screen advice, but it fell short of actually taking the process through step by step – with frustrating results.

Since *Chameleon* will save data in the universal MIDI file format you can put these files of sounds on the same disk as your sequence and request the sequencer to load them, thus booting sounds into the various synths at your disposal. When run with a sequencer as a desktop accessory, the sequencer stopped running as you entered *Chameleon*, but returned back to the point where it had left. Not quite multi-tasking but very useful.

One or two quirks stop this from being an A1 music tool and these can be rectified very quickly. At present it's too easy to lose all your work; if you hit the quit icon there is no prompt box – the lot just disappears.

The same is true for the libraries, they are too easy to overwrite by accident. A little more direct examples, and less theory in the programming section, wouldn't go amiss. Nevertheless it's a good piece of software and if the cost seems too much then you can check out a demo version either from PD libraries or direct from Keynote for £3.00.

FORMAT RATINGS

Features 80%
You can file sounds superbly but you can't edit them

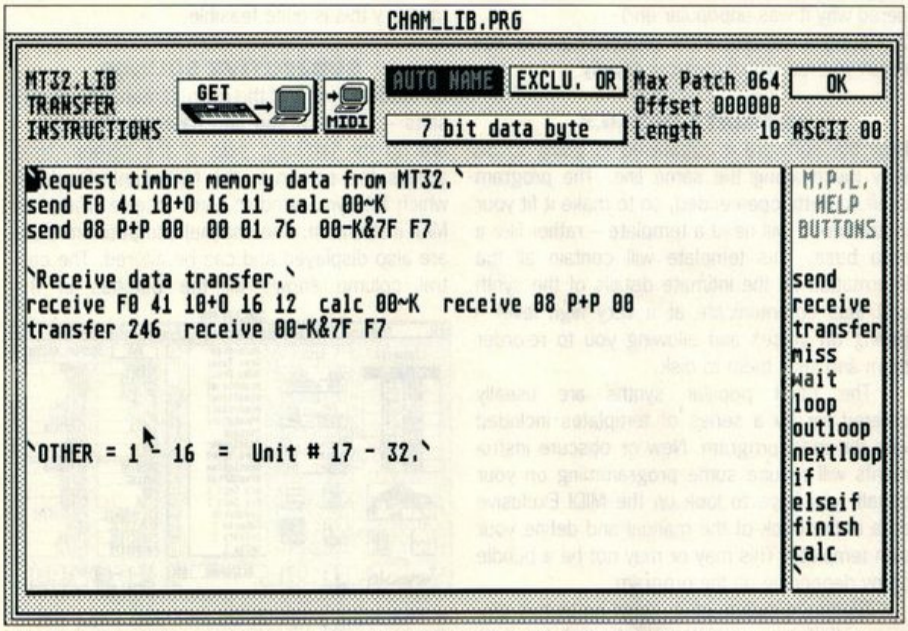
Speed 95%
No problem, although it stops a sequencer in its tracks

Ease of Use 75%
Good until you try programming your own pages

Results 90%
Very efficient and the GEM options are well thought through

Format Value 85%
If you want to have lots of sounds at your disposal for many synths, and editing the sounds is not a priority then this program is outstanding value for money

The Competition
In terms of universal librarians there simply isn't any competition



■ **Set up *Chameleon* to work with any synth using the MIDI Programming Language – and the best of luck to you!**

Midiman

MACHINE: ALL STs
PRICE: £79
FROM: HOLLIS RESEARCH LTD
CONTACT: 0481 710982

Midiman is an accompanying program to *Trackman* – a well designed sequencer from the same stable. *Midiman* acts as a desk accessory for all GEM based sequencers but if used with it's partner it has a few additional functions.

Whatever environment it's working in, you can have up to six different editing options on hand simultaneously. By way of a taster, should you not have *Trackman* on hand, the program comes resident inside a demo version of the aforementioned sequencer. Essentially it's aimed a slight tangent away from the librarian facility seen in *Chameleon*. It's termed a Universal Editing Controller and as such it can be configured to edit and control many MIDI functions.

The main screen initially comes up blank. That's because it's waiting for you to load up one of the templates contained on the second disk. Each template can be up to eight screen pages long and contains the controls for editing and programming the MIDI device in question.

The review copy contained systems for as many synths as the *Chameleon* librarian did and although it omitted, surprisingly, the Akai *S900* samplers and some of the "performance" memories of instruments like the *TX81Z* and *D110*, it did have some quite interesting controls for a Lexicon digital effects processor – which is fully controllable via MIDI, and also a page for programming an *RX11* drum machine. There is also a general multi-purpose MIDI control template. Doubtless this list will be added to.

The rub is, that although it will program the synths quite happily, it will not pull the sounds back in editable libraries as such. What it does is store the set-up pages that you've made from the blank templates to disk and enable you to recall them individually. However, when you run the program with a GEM based sequencer other than it's partner *Trackman*, the amount of patch sending that you can do while your main program is up and running is limited. It would be better to customise the sounds and store them as separate patches within the instruments memory, which may be defeating the object of a desk accessory a little.

Since it's universal in its control of MIDI you can use it to control volume and actual MIDI set-ups for any system – maybe with a little effort you could include stereo pan controlling if your instrument understands this command.

The fact that it will actually edit the sounds to your liking gives it an edge over *Chameleon*. One silly little point is that whatever edit template page you call up, the darn thing isn't labelled on the screen so you could spend some time trying to remember which synth you're editing. It does remember what MIDI channel it was previously programming on so if the synths are connected the same way round that may help a little.

Midiman is a more versatile animal when ➢

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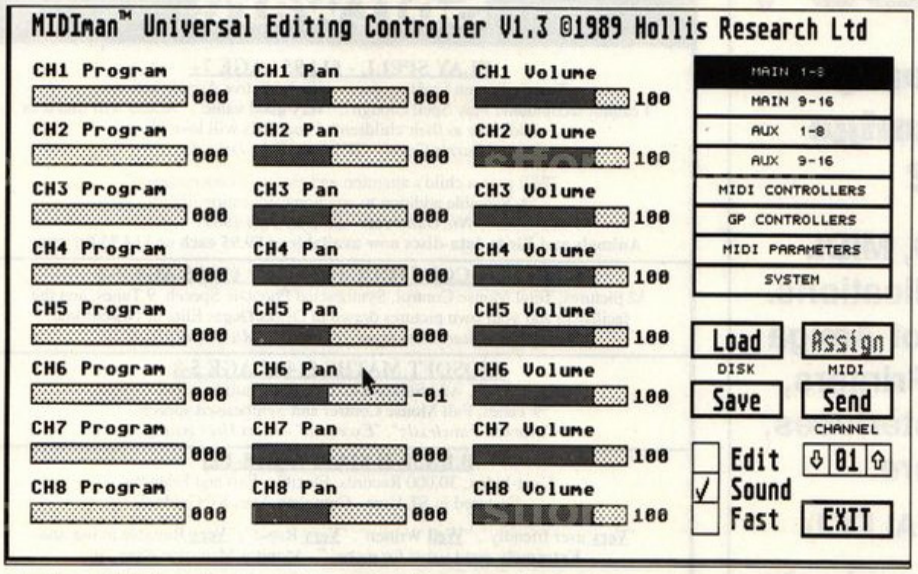
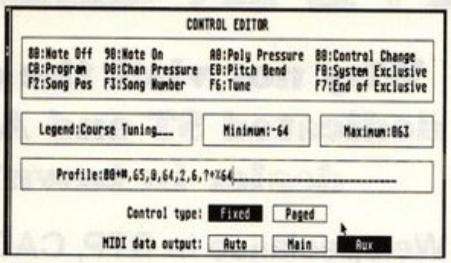
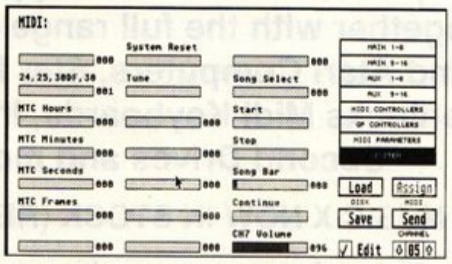


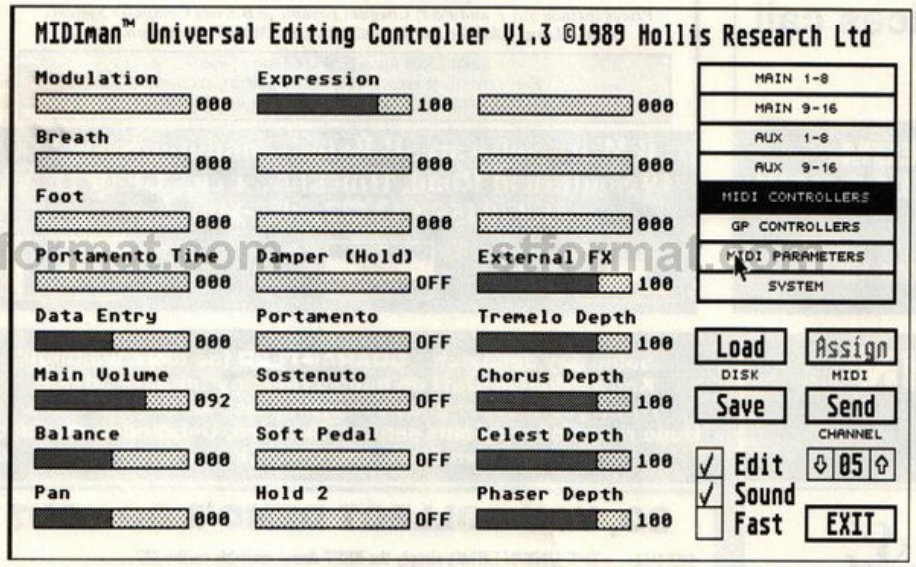
■ **(Above)** ***Midiman's*** **clearly laid out mixing desk for MIDI channels;**



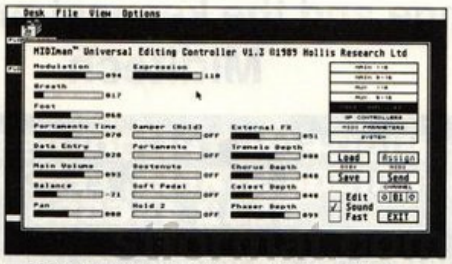
■ **(Above) The systems exclusive page**



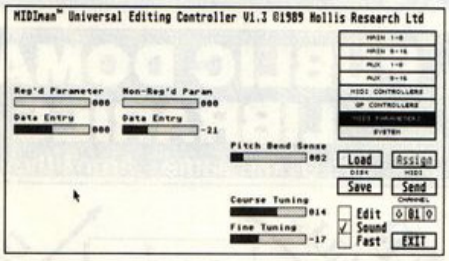
■ **(Above) The MIDI sync page**



■ **(Above) The MIDI controller screen sets up global attributes for the entire system**



■ **(Above) Alter system variables from**



■ **(Above) A** ***Midiman*** **global edit page**

paired up with *Trackman*. It plays back the patch edits – although these are recorded as part of *Trackman's* sequence – and you can edit the sounds while the sequencer is recording or playing back since there's the option to put *Midiman* either in front of or behind *Trackman* in the MIDI signal chain. It also performs clever feats of MIDI control changes. That is to say, if you wish to use the pitch bend wheel to control some other function, say velocity, there's no problem at all. Simply select the appropriate destination function and *Midiman* will interpret and convert one controller to another. You can also apply this to data concerning the real time editing of sounds (pitch-bend could alter the sound of the patch you're using in real time with all the data recorded as part of the sequence).

The documentation is generally sound, logical and well presented. The ease that you can follow it starts to disappear when you get to the awkward area of programming your own MIDI control page should you want to set up a synth not contained in the general list. The manual starts off being very straightforward in this section and then all of a horrible sudden you turn over the page and it hits you with a whole host of programming language that's not really fully demonstrated. A bit of a shame; this anomaly would probably serve to put a lot of people off the idea of trying to get to grips with MIDI.

As an accessory outside of *Trackman* you'll miss out on a bit of interaction. With *Trackman* it becomes a powerful and versatile tool. ■

MIDIMAN v CHAMELEON: THE VERDICT

After letting the products have fifteen rounds in the ring together, we have a technical draw. Both contestants are admirable in their adaptability for many synths. *Midiman* is a little more open-ended in its applications but it needs *Trackman* to get the full benefits.

Chameleon **scores by filing the sounds very much like a database and lets you recall them in banks, but you can't create your own sounds. There'll be a universal sound editing program available soon but not at this price.**

Both programs fall down and narrowly miss a technical KO when it comes to information on setting up your own programming pages. They assume too much on behalf of the user and don't use enough space in the manual for logical step-by-step illustrated examples taken from the Systems Exclusive section of the synth manuals. A firm warning from the referee to both contestants!

FORMAT RATINGS

Features **95%**
You can edit samples easily but filing them is not too fast. Though it's still an incredibly versatile program.

Speed **85%**
Filing is not particularly speedy but everything is much faster with *Trackman* than with other sequencers

Ease of Use **75%**
Very easy to use – until you try programming your own pages

Results **90%**
There are absolutely no problems at all with the end product

Format Value **86%**
Although it could be awkward if your synth isn't on its copious list, it scores highly as a universal synth editor and MIDI controller

The Competition
At this price there's nothing close to it. The nearest equivalent is Dr T's *X-OR* and that weighs in at £250 from MCM (01 258 3454)

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SOUND WAVE

STORY
Vic Lennard

A new user friendly generic sample editor takes the tedium out of sound editing

The latest offering from a company whose previous products include editors for various synths and samplers is a generic sample editor consisting of two programs – *Genwave 12* and *16*, for use with different samplers.

The latter also caters for stereo machines. It simplifies the otherwise tedious process of editing sounds from the front panel including the looping of a sound – giving the aural illusion that a two second sample, say, lasts indefinitely.

It goes beyond the facilities found on most hardware samplers and offers many features only possible through using a computer. It also permits you to transfer sounds between different machines.

Genwave comes on two disks with a small mouse port key for copy protection. The memory left after loading leaves around nine seconds and four seconds respectively (at 40 kHz) with a 1040. The manufacturers do recommend at least 2MBytes of memory in the case of *Genwave 16*. Both hi-res mono and medium-res colour monitors can be used although screens are still in mono.

The principal screens and facilities are the same for both versions with up to five samples in memory (seven for Genwave 16). The program loads up with the Loop/Draw screen which is split into three areas.

VISUAL LOOP

The bottom strip views the complete sample while the magnification window above can work in two ways. It either shows a zoomed-in region of the waveform (one-shot mode) or is split (loop mode) to show the end of the loop in the left side and the start in the right. This means that the actual loop point is slap bang in the middle of the screen and each half can be slowly scrolled until the best visual loop is achieved.

The use of white on a black background makes the process easy on the eyes. Facilities offered on this page include "draw" which allows you to use the mouse to edit waveforms, "fade" for creating a linear fadeout and therefore removing noise at the end of a sample, and "cross-fade" for smoothing glitches at loop points. There is an "undo" option for retracting an incorrect edit.

The next page, Equalizer, gives you five different types of digital equalisation with all necessary parameters so that you can either make a subtle change to a sound or completely alter it tone-wise. For this to work effectively, it is important to be able to see the frequency content of the waveform. The FFT (fast fourier transform) display of 128 frequencies and time slices is most accurate and includes the ability to zoom in on a particular frequency. So, for instance, if you want to add a bit more snap to a snare drum you can pick out the dominant frequencies and so correctly centre the EQ.

Changing the dynamics of a sample is achieved via the Envelope page. Custom drawing of fade-ins and outs are possible by using the mouse and samples can be maximised to lower the perceived noise inherent in the sound. Parts of a sample can be saved to the clipboard which uses the disk drive as a buffer and can then be copied, reversed, inserted and merged. This leads to the creation of custom sounds jigsaw-fashion.

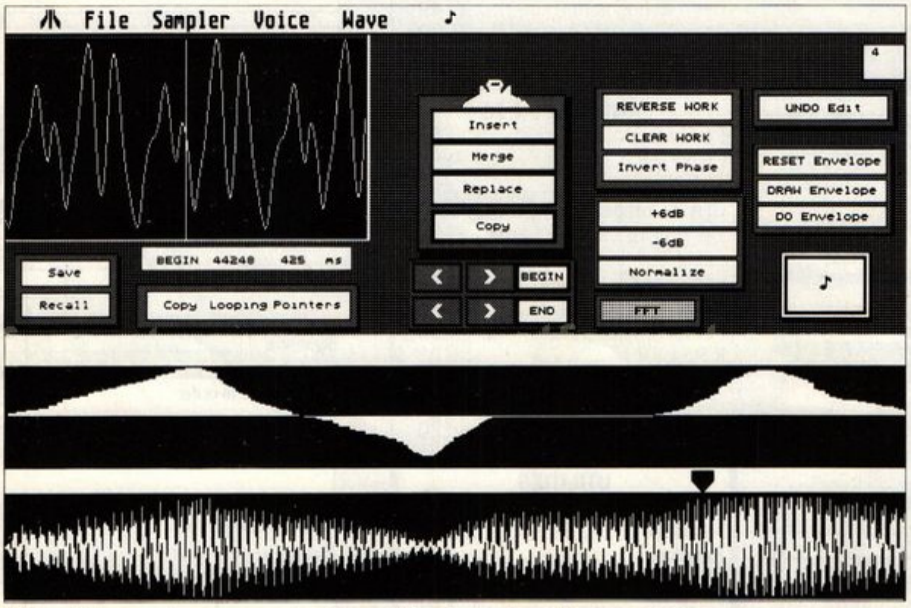
To playback a sample there is a note icon on each page and the facility of a drop-down keyboard which triggers the sound in the sampler. As any alteration to the actual waveform (fade, crossfade, EQ or envelope) necessitates the sending of the sample back to the sampler via the Midi lines, a somewhat time-consuming process, the use of *ST-Replay* is allowed.

This is an 8-bit converter which plugs into the cartridge port and is manufactured by Microdeal. The sound quality isn't marvellous but bad loops can be clearly heard and the playback frequency can be set from the program.

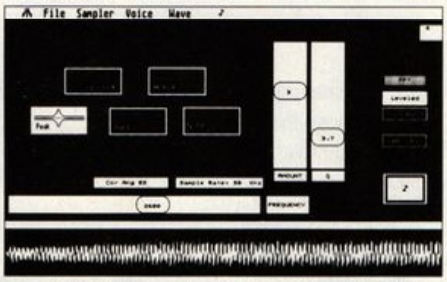
ORIGINAL PITCH

Genwave 16 has a few extra features. Sample Rate Conversion allows you to change the frequency at which a sample has been taken so that it can be transferred to a different sampler but keep the original pitch.

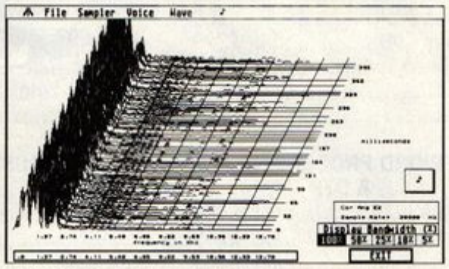
As samples can be saved to disk, it's possible to load in a *Genwave 12* sample, change the sample rate and then load it back into *Genwave 12* for tranference. Pitch Transposition resamples at a different pitch but keeps the sample rate, and so the length of the sample, the same. This is useful for chord ➤



■ **Use this envelope screen to change the dynamics of your sample**



■ ***Genwave's* equalizer screen offers five types of digital equalization**



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building from a single note and so setting up a brass or orchestral hit.

Multiple loops for the Casio samplers are catered for and there are certain functions only suited to stereo samples (like panning).

Although *Genwave* may not be quite as powerful as some of the competition in the field, it's extremely user-friendly and fast to work with. ■

FORMAT RATINGS

Features 80%
Carries out all standard sample edits. Can't break samples down into frequency components for resynthesis

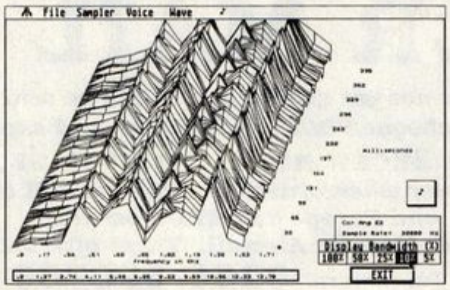
Speed 85%
All edits carried out within the ST. Digital EQ a bit slow

Ease of Use 95%
Very straightforward. You'll only need to open the manual once

Results 88%
Excellent for loop setting. Fast Fourier transform makes digital EQing very accurate

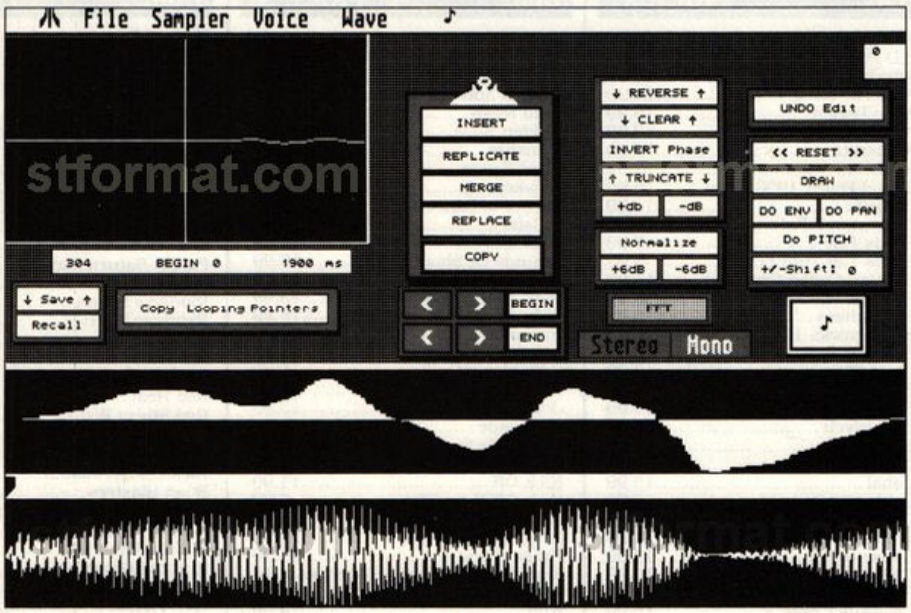
Format Value 90%
A necessity if you take sampling seriously and certainly justifiable for carrying out basic edits

The Competition
Steinberg Avalon, £200, Evenlode (099 389 8484); *Digidesign Universal Sound Designer*, £299, Sound Technology (6462 480000)



■ **Zoom right in on that FFT**

■ **The loop/Draw screen – very well done**



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On a cold and cloudy day in December I, a cucumber-fingered novice, learned to fly a radio-controlled model aircraft. But I did so with no risk of expensive crashes, in the warmth of Bob Sidwick's back room, with cups of coffee and biscuits: on an ST.

Aerochopper is an ST hardware-cum-software flight simulator that for realism knocks your *Flight Simulator IIs* and your *Falcons* into a cockpit. With its complicated and unfamiliar controls it's more akin to an arcade machine than a traditional flight simulator.

Unlike an arcade game, however, you get to test out how well you've progressed, launching costly, delicate and very real equipment into the sky. As I stood that same afternoon on a disused airfield outside Bristol and waited for Bob to hand over the radio controls to an all too real model aircraft I was beginning to question my sanity – and his. But I need not have worried, for the similarity between the real thing and what I'd experienced on an ST was quite uncanny. Realism? It was as if the nautilus-shelled monster in *Xenon II* had leaned through the screen, called me ugly and asked me what I was going to do about it.

GROUND CONTROL

Inevitably the first people to become aware of *Aerochopper* were model aircraft enthusiasts, who rave about its accuracy and regard it as an investment that aids flying progress and reduces the likelihood of those sickening crashes that sentence you to a spell in the garage as well as a wallet-wrenching fine. (It's not a cheap sport: a set of equipment could cost a mere £250 for a high wing trainer aircraft, right up to £600 and beyond for a decent helicopter.)

Several members of the Avon Model Aircraft Radio Club, where Sidwick does his own flying, have bought *Aerochopper* – and an ST to run it on – simply through trying out his. One chap pointed out that for the cost of *Aerochopper* and an ST he could buy another helicopter. That was before he'd seen it. Now that he's a member of the ST-owning classes and his only complaint is that it's so addictive he never gets any outdoor flying done.

But if you're not a model plane enthusiast, and you can afford it, this is the ultimate ST game. It's realistic, has playability like you wouldn't believe, and is so addictive that I had serious trouble persuading my photographer to leave Sidwick's house.

As a training aid it really does work. I can testify to that, as can Bob's 12 year old son Richard, who learnt to fly on *Aerochopper:* when he was let loose on the real thing his father did not have to touch the controls once. On his fourth outing he was doing take-offs and landings – something I'm still some way away from.

UP, DOWN, FLYING AROUND

Bob Sidwick cannot claim to have created *Aerochopper*. The credit for that goes to Illinois-based David Stern, who launched the program back in October 1988. Sidwick saw a reference to it tucked away in a small computer news item, contaced Stern and arranged to become the British distributor.

If you've flown flight simulators you would have no trouble recognising the layout of *Aerochopper*, and though the landscape may be minimal and the aircraft themselves too much like the wire coathanger graphics of beloved memory, you recognise from the outset that this is no ordinary sim. What really sets it apart, however, are the controls. You use the keyboard to set up flight parameters – size and type of craft, windspeed, height of viewpoint and so on. When it comes to flying, though, forget your traditional joystick or mouse.

Instead you lay both hands on what looks and feels exactly like a radio control box. There's a good reason for this, for Japanese radio control equipment manufacturer the Futaba Corporation have taken one of their standard boxes, ripped its guts out and designed it so that it connects to a cartridge that contains the whole program and the analogue to digital converter.

This unusual system is a whole galaxy away from the clumsy and limited joystick. It is familiar, of course, to model aircraft buffs; and prepares the learner for the complex and subtle task of getting a plane up, keeping it there as long as desired and getting it down in one piece.

There are four different types of aircraft on the menu. Besides the basic trainer, which I learnt on, there's an aerobatic aircraft; a ducted fan F18 jet; a glider; and finally, for the top guns who really fancy their chances, there are three different types of helicopter.

Watch an experienced helicopter flier and you can be misled into thinking there's not much to it. But for some people it really can take several years, and the standard which they eventually reach may not be that high. Even a relatively minor crash to an upmarket machine can cost £100 or more, and as Sidwick says the excitement and interest soon wanes if a mistake sets you back that much.

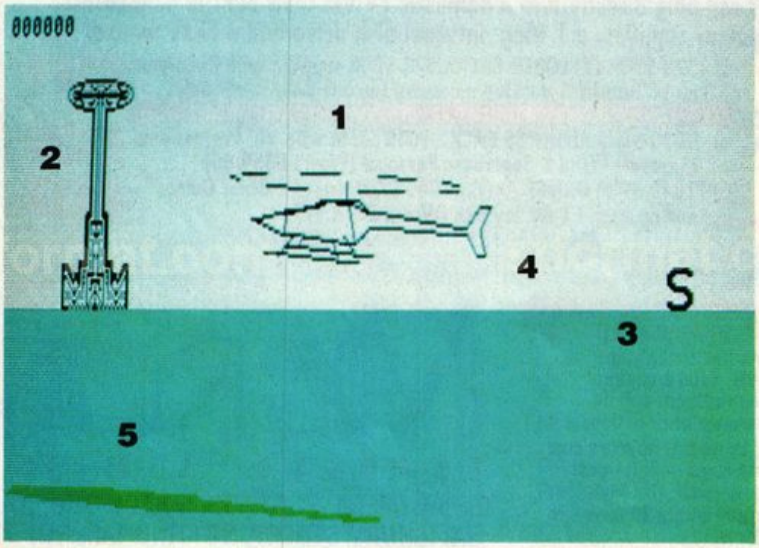
"I've never flown anything as difficult as the helicopter," says Sidwick. "I spent probably eight hours, and I honestly reached the point on *Aerochopper* when I thought I wasn't going to be able to do it. It was the hovering, I couldn't seem to be able to co-ordinate it. And then suddenly I flew it the following day and it just clicked." – Eight risk-free hours, however frustrating, compares very favourably indeed with the months and even years of nervous tension the learner faces using traditional methods.

Aerochopper presents even the most battle-weary gamester with a real challenge, something that you won't "solve" or become bored with in a matter of weeks or even months. And it also provides a way into what has traditionally been a rewarding but at the same time very expensive hobby.

And now there are signs that *Aerochopper* is breaking out of the hobbyist niche and beginning to make its mark in the wider ST world. Sidwick demonstrated it at last September's PC Show, and received numerous enquiries as a result. More signficantly, Mirrorsoft have converted *Falcon* and its mission disk for *Aerochopper*, and discussions are under way with other software houses who are beginning to recognise its potential.

You may "fly" an F-16, you may "fly" *Falcon* very, very well – but you won't get to *fly* one. With *Aerochopper* you can train to do something which involves real life flying. As training aid and as ST entertainment, nothing comes close.

■ If you're interested in flying model aircraft, Bob suggests you get in touch with your local club, where you'll be covered by insurance, and obtain expert help. On no account should you simply buy a plane and take if out for a flight – even if you have flown *Aerochopper!*



■ (main picture, right) Bob Sidwick learnt to fly his radio-controlled helicopter on his ST – it's much cheaper when crashes! (left) 1 – hovering a chopper in *Aerochopper;* 2 – the control tower, which you can blow up should you so desire, or which can be programmed to fire moving targets for you to hit; 3 – S stands for South, giving you orientation; 4 – you can adjust the background so your aircraft is higher or lower in the sky; 5 – note the shadow, which helps you know where you are and how high; (above left) the glider, one of *Aerochopper's* less hectic modes; and finally (above right), the cartridge and controls: *Aerochopper* hardware prepares you for the real thing without you having to put your kit at risk until you're quite ready

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Intended as an ST-based training aid for radio-controlled model aircraft enthusiasts, **Aerochopper** *is potentially much more: the most realistic home computer game yet*

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LIVING HISTORY

STORY *Mike Gerrard*

"A lecturer at a teacher training college asked the students why they wanted to teach history. When the words 'fun' and 'enjoyment' were mentioned, he made it quite clear that these were definitely not what history was about"

Jim Fanning manages the Bowen Youth Centre in Ashford, one of the largest youth clubs in Kent, and teaches history on a voluntary basis at the nearby Duncan Bowen High School. His own attempts to bring a bit of fun and enjoyment into the often dry arena of history have resulted in the publication of two computer programs *The History File* and *The Search*. The latter's still being debugged, but when finished it will follow its predecessor into the public domain libraries.

"*The History File*," Jim says, "is a mixture of fact and fiction. It's set in a village called West Calder, about 14 miles west of Edinburgh. It's my home, and I first started studying its history when I was studying at St Mary's Academy in Bathgate.

"The idea for the program arose out of a 6th form dissertation. I wrote the first version on the Spectrum using *The Quill* adventure-writing program because we'd established a computer club at the youth club using Spectrums and Commodore 64s. I used them with pupils at Duncan Bowen as well. In the past year the club's bought several STs so I transferred the program to them using Incentive's *STAC*. The graphics were done with both *Neochrome* and Ladbroke's *Image Scanner*, with some of the text files created on *First Word*."

MURDER MYSTERY

Knowing that the programs were written on the *ST Adventure Creator* might give a false impression of what they're like. They're similar in some ways to adventure games, but the purpose is to gather together historical information rather than to solve incredibly difficult problems.

There is a network of locations for the player to explore by using commands like GO NORTH and so on, but in exploring those locations the player will ultimately discover that history lives in places like churches, on gravestones, in libraries and museums, in antique shops, bookshops, in newspaper files and old photographs.

"*The History File* is in three parts," Jim explains, "and in the first part you find a letter in an old history book and set out to discover something about the names mentioned in it. Your travels take you around the village of present-day West Calder, from the library to the newspaper office, from the census office to the national library in Edinburgh. The aim is to introduce pupils to historical sources and to the idea that the work of a historian is similar to that of a detective – you search for clues and information and try to form a picture of what happened, rather like putting a jigsaw together and finding that some of the pieces are missing."

■ The main street of West Calder today

To create an interest in discovering the missing pieces, Jim Fanning has incorporated a murder mystery into the real-life background of 1880's West Calder. Whereas most computer game murder mysteries are no more realistic than another round of *Cluedo*, this one is completely convincing, arising as it does out of the historical circumstances. Fact and fiction are blended so skillfully that the player will be unable to distinguish between them. The original letter setting the pupil off on the murder trail reads:

Dearest Ann,
I must see you urgently. I think that you are in the greatest of danger. Meet me on the day of the procession, at the corner of Annan Street, at 1 o'clock.
Jim Slater.
9th June 1884.

The book in which you find this letter has the name John Bruce written on its inside cover. So, armed with the names of John Bruce, Jim Slater and Ann, and a date, what can you discover from the material currently available in newspaper files and libraries?

The player will discover that the letter was written to Ann Jessup, whose body was found on the 17th June, 1884, with Jim Slater being charged with her murder. Other names will be uncovered, however, and further research into their backgrounds raises suspicions about the murderer's true identity.

Using the second disk of the package, the player then travels back to West Calder in 1884, shortly after the murder, and pursues the lines of enquiry. You're presented with a menu of 11 options, any of which can be followed. These include eavesdropping on local gossip, reading letters that were unavailable to the modern historian and the chance to interview some of the participants.

HOT GOSSIP

You soon learn that history isn't necessarily factual: the events reported in books and newspapers that record what took place are unlikely to give the whole picture. A report may be true as far as was known; or it may not be true at all, simply a subjective view of events. Listening to the local gossip in West Calder (oral history actually) will reveal further information and speculation about the murder of Ann Jessup, and it's your task to make notes and cross-check where possible.

"*The History File* aims to teach the methods available to the historian," Jim Fanning says, "to introduce the idea that historical study is fallible and that history is not merely a list of dates and facts."

The third disk in the package contains a small database program in which the player can look up an A-Z of references and information concerned with historical research generally. It also shows how a program like *STAC* isn't just limited to producing adventures. Instead of typing GO NORTH to be taken from the Wizard's

■ This man's name appears on the inside cover of the book in which the original letter was found. You have very little information to go on, so you should follow every clue carefully. The computer suggests checking out Mr Bruce with the aid of the parish priest

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■ ***The Search:*** **history as enigmatic as the Mona Lisa's smile? Begin by investigating history at a manageable family and local level, then branch off onto wider topics**

Tower to the Enchanted Forest, the program can just as easily cope with typing SHALE to take the user from the main menu to several pages of information about the shale-mining industry in 1850's West Calder.

INVENTED VILLAGE

The database is also a feature of Jim's latest ST program, *The Search* – though this is a much smaller program. The database is incorporated as a command that can be entered to immediately bring up a list of options.

The scanned graphics in *The History File* were rather blurred. Their merit lie in the fact that the author could include documents and illustrations of the actual places in the program. *The Search* includes graphics obtained through Rombo's *Vidi ST* interface, which are much clearer, and Jim Fanning has added *Timeworks' DTP* program to help with the vast amount of documentation that comes with each program. With *The Search* this includes photocopies of old newspapers, and if these aren't the real thing then they've been faked extremely well.

The Search also deals with local history as you try to find out all that you can about the Griggs family, who are one of the oldest established families in the Kent village of Bidden. A member of the family has lived there since at least the 1590s, which gives you something to aim at. This time you explore an invented village, though photocopies of letters, postcards and other documents provided with the program look so authentic that it's hard to believe that the village doesn't actually exist.

MAN HAS ARMS CHOPPED OFF

In a drawer in the local newspaper office you find some cuttings relating to the Indian Mutiny of 1857, and in particular the death of a Lieutenant Robert Griggs, who had both his arms chopped off. A cutting from *The Times* of 1944 refers to a Warrant Officer T.E.Griggs of the Royal Canadian Air Force, reported missing, presumed killed in action. Examine the list of vicars in the Bidden Parish Church and you discover that a John Griggs was vicar there from 1870-1890.

A teacher could use *The Search* as the core of a project, branching off at any point to investigate the Indian Mutiny, or the religious persecutions of the 16th Century – or in fact any event which enters the history of the Griggs family.

The Search has been used in just that way, as part of a one-term course on local and family history. Teachers' notes are provided, showing the information that the pupils should be able to extract from the program.

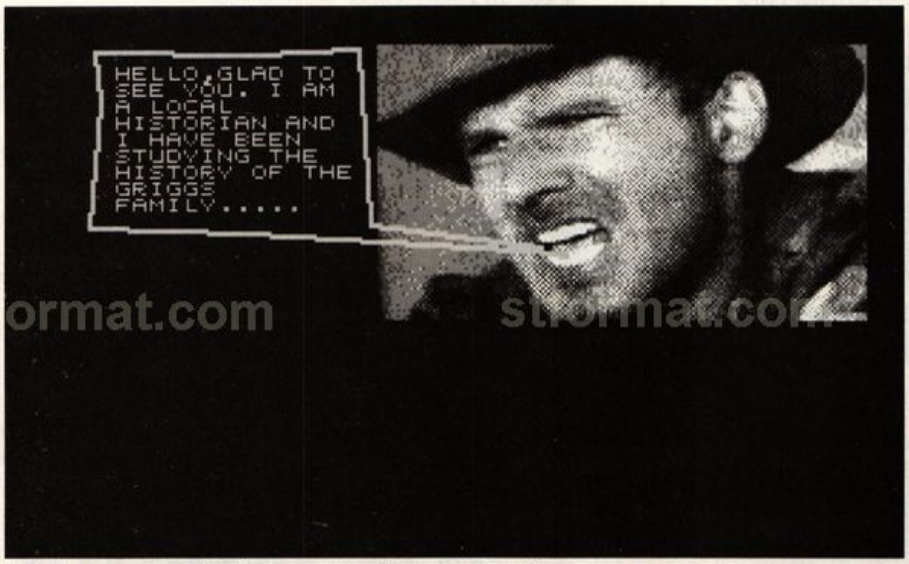
The programs are injected with a healthy sense of humour that's bound to go down well with teenagers. Outside one house in the village is a sign saying "I.Jones. Local Historian." Go inside and the graphic shows you that the "I" stands for Indiana. At the library the reference drawers are no longer in use because they've all been computerised. Using the computer shows that this has definitely not been a total success.

ANTI-SOCIAL ACTIVITY

One great virtue these programs have is that both have been extensively used with pupils and youth club members, and changes have been made at their suggestion. There are still a few rough edges, and the parsing on *The History File* could certainly be improved, but these are minor criticisms of what are essentially two very stimulating programs, a welcome contrast to commercial releases that can be all gloss and no content.

The gloss might be missing from Jim Fanning's programs, but the content is certainly there as anyone who sends for the program notes will discover when a hundred or so A4 pages come thudding through the letter box. Teachers should be warned that after a term's work on these, pupils are likely to demand another dose dealing with their own town or village. You could be in deep water – how's your knowledge of STAC?

"Criticisms from adults concerning the use of computing," Jim says, "particularly in a youth club, centre on the fact that they think it's an anti-social activity, very solitary, and that all the kids do is zap aliens. That's all most people think computing is about, which is a great shame. I'll be delighted if a program like *The History File* can counter just a few of these arguments. Using the program at school and in the youth club, in the informal atmosphere of the computer room, we've generated really fierce arguments on the subject of who the murderer is, and why. I don't care if the programs only have a limited audience amongst ST owners, they were basically only written for fun and enjoyment which I *do* believe are aspects of history, despite what that lecturer said."



■ **Well-known local historian and part-time actor, Mr I.Jones**

INFORMATION

The History File **is available through several PD libraries, such as Goodman Enterprises, 16 Conrad Close, Meir Hay Estate, Longton, Stoke-on-Trent ST3 1SW (0782-335650).**

The three disk set, reference GD291-293 *History Set*, costs £6.75. Program notes are available direct from the author for £2: Jim Fanning, The Bowen Youth Centre, Kingsnorth Road, Ashford, Kent TN23 2LY (0223-629804).

The Bowen Youth Centre caters for all ages, but particularly the 13-17 age group. Facilities include an indoor swimming pool, gymnasium, fitness area and disco centre, as well as computer club.

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PUBLIC SPEAKING

STORY *Richard Monteiro*

ST Format *investigates the peaks and troughs of the public domain*

SORCERER'S STRATEGY

PAGE 6 DISK ST188

In this game of – surprise, surprise – strategy, you control a wizard who stands on a multi-coloured chequerboard. The object of the game is to render the entire board the same colour. This is done by moving around and casting one of a variety of spells. Simple enough, but life is made a tad difficult by the computer controlled wizard who is desperately trying to convert the board to the opposite end of the spectrum.

Similar to *Othello*, this game has what it takes to make excellent entertainment; simple rules but complicated execution. The computer isn't that hard to beat, but use the two-player mode and the game really comes to life. Try it.

★★★★★

SOZOBON C

SOUTH WEST SOFTWARE LIBRARY
DISK 299

You've probably heard what a wonderful language C is to program in. It's powerful and most fundamental software is now written in it.

It's a structured programming language which lends itself to major tasks much better than humble old BASIC, and it's very much faster than that stalwart of the programming beginner. Versions of C on different micros will often run the same programs; all you need do, in theory, is recompile on the second machine.

It does have its disadvantages though. Beginners often find it daunting, though those who've taken the plunge swear by its use of programming libraries and other features which confuse the uninitiated. Also, it's a compiled language – no instant feedback on mistakes as in BASIC. The entire program must be converted into machine code for testing, a time consuming process.

But ultimately the pros outweigh the cons and most professional programming these days is done using C, so it's good news to find a fully fledged C compiler in the public domain.

Sozobon C contains all the programs, libraries, header files and – most important of all – documentation you need to set out and use it. What it doesn't include is a tutorial on C programming, but as C has a common language set, no matter which machine it's running on, you'll find bookshelves full of user guides. For those already familiar with C, the *Sozobon* implementation is a standard version of Kernighan and Richie's language with what the authors describe as "the usual extensions."

★★★★★

■ A brand new series on programming in C for beginners starts on page 97. To support it we're offering a very special edition of *Sozobon C* in the Special Offers pages at the back of this issue. Specifically suited to the beginner, it comes on two single-sided disks in non-compressed files and with full documentation on paper.

EMPIRE BUILDER

Fancy yourself as a business person? This game should satisfy your desires. *Empire Builder* is a text-based simulation of the building industry. It's not as dull as it sounds – honest!

To succeed you must build houses and sell them, and to do that you need the right staff, legal advice, a helpful banker and a pinch of good luck. The game is menu-controlled and written in BASIC, but the slight delays that this introduces actually makes the play more realistic as the months pass.

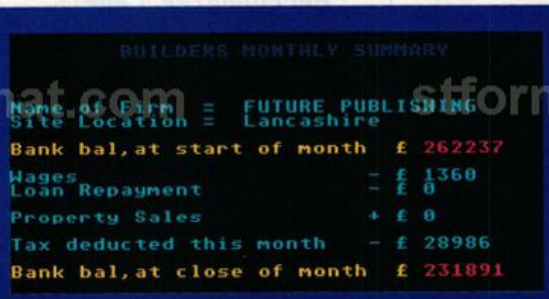
Playing this game convinced me that I'll never be a Wimpey or a McAlpine, but it was worth a try! I've lost the name of the PD library that sent in this one (disorganised? me?), so if you recognise it from your catalogue do drop a line to Public Speaking and I'll set the record straight.

HERO

SOUTH WEST SOFTWARE LIBRARY
DISK 540

The beautiful Princess Pulchera (sounds like something you'd do after too many lagers) has been captured by the wicked wizard Baldor and whisked away to his dark dungeon. Your mission is to rescue her from his evil clutches.

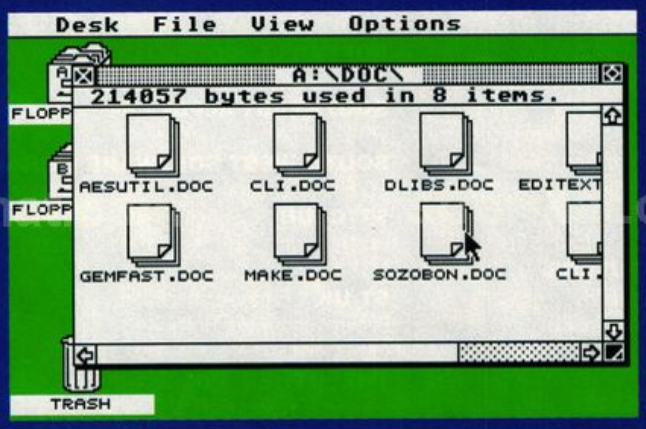
Hero is a dungeons and dragons game



■ *Empire Builder* for the Wimpey in you

■ Rescue the beautiful princess and overcome the wicked wizard in *Hero*

■ ST Monopoly: breach of copyright action, ahoy!



■ *Sozobon C:* Well over 200K of documentation files. Why can't all PD programs be like this?

■ Your task: to turn the board red before the computer controlled wizard makes it purple

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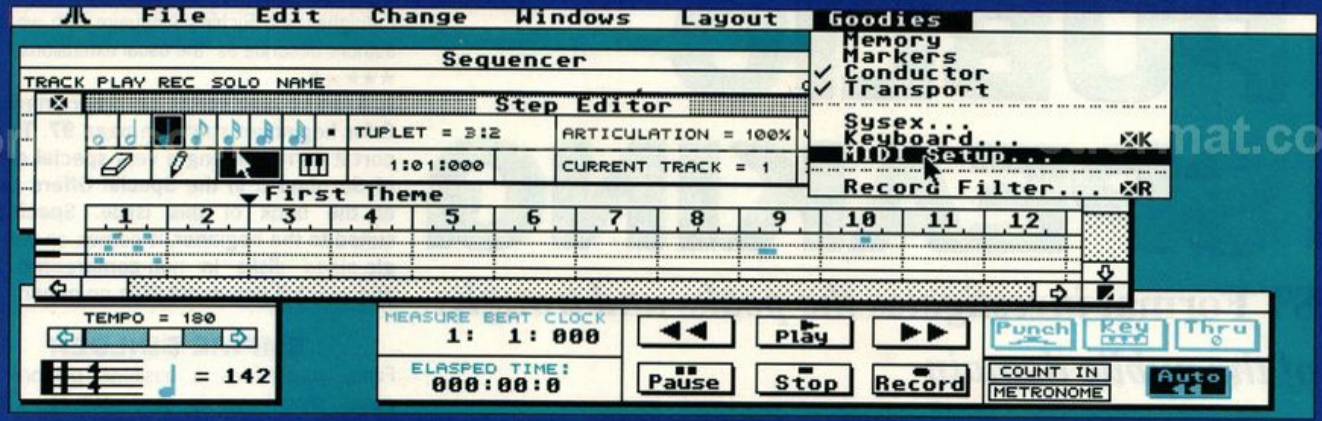

MASTERTRACKS PRO

PAGE 6 DISK ST189

Product demos are one of the most useful parts of the public domain. You can get hold of an almost fully functional program, try it out, see if it can do what you want it to, and then lash out the cash if it's what you want.

Mastertracks Pro is one of the top MIDI sequencers available for the ST. It offers you total control over the MIDI signal your micro sends out; some of the effects that can be achieved with a decent synthesiser are astounding. So here is your chance to try it out for the price of a disk. You can do everything with this demo except save your work.

★★★★

■ *Mastertracks Pro* puts you in charge of MIDI

Gauntlet style. Before you start your quest you must decide on your character's attributes: strength, intelligence, and so on. After that it's into the dungeon. The catacombs are represented in distinctly *Gauntletian* style; an overhead view of the character as he moves around. Control is by a rather awkward mixture of joystick and mouse. You move and fight with the joystick, while picking up objects, casting spells and otherwise creating mayhem with the mouse. This awkward swapping detracts from the immediacy of the game, which is a pity as it's otherwise a well put together dungeon simulation.

If you register your copy (*Hero* is shareware) you receive a copy of a dungeon creator to let you build your own castles.

★★★

MONOPOLY

SOUTH WEST SOFTWARE LIBRARY DISK 540

On the same South West Software Library disk as *Hero* is *Monopoly*. No prizes for guessing what this is – a straight conversion of the board game with the ST playing as banker, board and dice. The main problems with it are the fact that you can't see what your opponents own except by landing on their property.

Because the board and lettering are so small, you'll need a monitor to see anything clearly. A TV just won't do. A bigger problem for the author will be the law suit if Waddingtons ever notice this program is available. Send me a fiver and I'll keep quiet...

★★

INVENTORY PRO

GOODMAN PDL GD296

Lest I give the impression that PD libraries are only filled with games, here's a piece of very serious software.

Small businesses have to keep a close track of their stock levels and the company's inventory. This shareware program, once a full-price product, helps you do that. No-one is claiming it's easy to use, but there is context sensitive help and some rudimentary documentation.

Inventory Pro is a specialised product, but it shows the depth that now exists in the ST PD libraries. If there's something you need, there's probably a public domain version of it.

★★★

RATINGS

★★★★★ Beg, steal, borrow
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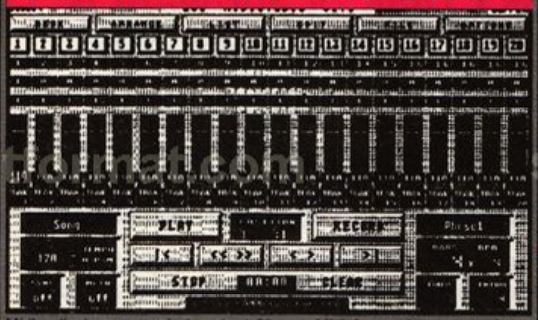

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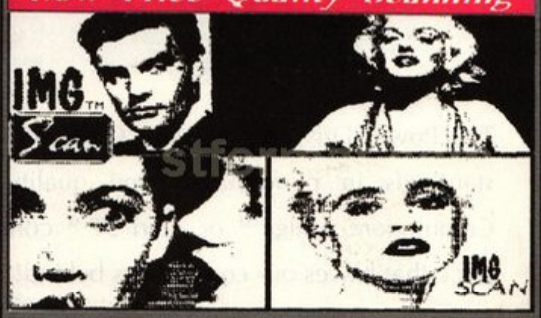

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*Deduct £10 if bought with computer, scart cable included

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We are offering a range of high quality ST hard drives at ridiculously low prices. All have the following specification. Full metal case, same size / colour as Mega ST, 60 watt PSU, room for second mechanism. The low power controller is full SCSI and allows up to 8 drives on one controller. The software includes Autopark, Autoboot from any partition, partition size up to 1 Gigabyte, any number of partitions, 100% AHDI 3.2 compatible driver, write protect any partition.

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- Turn your ST into a Mac
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Amiga Batman pack	£369.99	
Amiga Batman Plus Pack	£399.99	

* Phone for availability

The Batman Plus Pack Includes A500 Batman pack, mouse mat, joystick, modulator, plus the Tenstar pack and Photon Paint.

The Power Pack consists of Organiser software, First BASIC, First Music, and games consisting of Afterburner, R-Type, Gauntlet II, Super Hangon, Space harrier, Overlander, Super huey, Starglider, Eliminator, Nebulus, Pawmania, Predator, Bombjack, Bombuzal, Xenon, Double Dragon, Blacklamp, Outrun, Stargoose, Starray.

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DTP Mega 2 Pack	£1764.99
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The 1040 STFM Business Pack and the Mega ST's all come complete with the Professional software pack consisting of Microsoft Write wordprocessor, VIP Professional spreadsheet, Superbase Personal database and Metacomco BASIC language.

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ST FORMAT LETTERS

The Editor applies the paper knife to another collection of your correspondence both critical and complimentary

THE ONLY WAY IS UP

I can't thank you enough for your excellent Cover Disks, and although I only have a single drive, there is still enough of everything. I'm going to upgrade my 520STFM with a double-sided internal drive, and boost its memory to 1Mbyte. Can you suggest some dealers (and prices), that could provide me with a reliable service with goods to match? I'd be most grateful...

I hope you continue to produce this great ST magazine, and that the future holds a whole load of fresh surprises.

Keith Ellis
Chelmsford, Essex

Thanks for those few kind words, Keith. As for upgrading, if you can hang on for just a little while longer you'll find a whole feature dedicated to upgrading – from single to double-sided drive, from single to second drive, from 520 to 1040, from 1040 upwards... There's so much you can do to improve your equipment, and it may not be as expensive as you think. Stay tuned, everyone!

C USER GROUP STARTS HERE

I wonder if through your publication it might be possible to contact those Atari owners who program in C, making particular use of GEM? At your discretion, could you print my address in full so that they may contact me directly?

The obvious intention is to form some kind of user group whereby hints, tricks and tips may be passed between members. Currently, I am drafting a single sheet questionnaire enquiring of the interests, abilities and equipment set-up of anyone wishing to participate and this will be sent to all who reply.

Graeme Lawton
60 Reachview Close,
London NW1 OTY

Yes indeed Graeme: let us know how you get on. And we'd be interested in your input – and anyone else's – to our C series, beginning in this issue on page 97.

REQUEST FOR A THEME

I appreciate the magazine must appeal to a range of interests, and I therefore suggest the idea of a theme for the Cover Disks.

I think you should keep the playable demo games. Although I am an infrequent game player, the demos are usually interesting, and they show off the capabilities of the machine and of the programmers.

I hope you won't be offended if I say that the rest of the disk is like an Irish Stew, and it might be interesting to give it a more uniform flavour sometimes by the use of a theme.

For example, games might feature on one issue, data processing on a second, colour on another, and so on. The collection of programs on the particular disk would be related to different aspects of the common topic. It might be too restricting if done every month in such a way, but once a quarter, say, it could provide an interesting focus, to which one or more articles in the mag might relate. If publicised in advance issues, it could also help readers and advertisers to anticipate particular "special issues."

A Robson
Southport, Merseyside

An interesting idea, and we're particularly keen to have programs on Cover Disks that relate to what's in the mag (see, for instance, our Graphics series and our C series; our DTP series also makes use of the zzSoft program on last month's Cover Disk).

But I think you may be wrong about thematic Disks. No doubt readers will tell me if they think otherwise, but it seems to me one of the good things about our Cover Disks is that there's something on it for everyone. If, for example, you're a games freak and Graphics programming bores you rigid, why should you be subjected to a barrage of material you won't use?

FUNNY BONE OF CONTENTION

If I may respond to David Holmes of Cambridge who in issue 5 of our marvellous mag suggested a humorous column. Now if he read the mag from cover to cover as I do he would find that nearly every page contains humour of some sort (I'm looking forward to your article on extracting your own tonsils!).

And in response to R. Miller of Glasgow (also issue 5) I too am an ST novice, but I have found *ST Format* very helpful and informative.

As for the demos, someone said that they were boring, not if you experiment like I do. Take the *Purple Saturn Day* demo, I have used this as my own picture show.

Select eight of your favorite Neo pictures and copy them to a blank disk, re-name these PSD1 through to PSD8 (don't forget the Neo-extender). Now add the *Purple* demo program and the music SND file to the pictures and away you go – your own picture show with music. Has anyone else any suggestions or hints on making use of demos?

Roy Jones
Bethesda, Gwynedd

Roy, you're too kind... Well, not too kind exactly. Just very kind. It's good to see that, even as a beginner, you're experimenting and trying to do things for yourself. One word of caution, of course: make sure you're working with a copy of the Cover Disk. We'd hate you to spoil a valuable original!

HAS *NCE* A DOWNER ON THE ST?

I am writing to this excellent magazine because I am stuck on a few questions that I would really like answered.

1. I want to be a computer games programmer like the Bitmaps! What kind of languages would I need to learn?
2. I'm thinking of getting a Mega ST or an Atari TT. Is the TT a wise decision?
3. The ST is a much criticised computer. Is Atari sure that it was meant to be for games and not for music?
4. Why does your sister magazine *New Computer Express* always criticise the Atari ST instead of the Amiga?

S. Ally
Carshalton, Surrey

So many questions and no Christian name. Ah well, in the order you asked them here goes:
1) If you haven't done any programming before you could do worse than beginning with Basic, still an incredibly popular language, though hardly one that will ➢

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enable you to put those shy Bitmaps out of business. After all, they've been doing it for years and years: you can hardly expect to come sauntering in and conquer all immediately. Well, you can, but it would be unrealistic.

2) If you can really afford the two grand for a TT, go for it. It's a cracking machine, and it wouldn't half impress your mates!

Alternatively, a Mega or the new laptop Stacy would also up your cool rating in the neighbourhood. But you don't explain why you want to get rid of your 520, and if you don't have a good reason you'd be daft to do so.

3&4) Is the ST really "much criticised"? By whom? Here's a quote from New Computer Express *(issue 57): "a robust, versatile machine that opens up a wide world of both leisure and serious software of the highest quality at a reasonable price... the future of the ST certainly looks bright...*

"A powerful, reliable and well-supported 16-bit computer with all the software you're ever likely to need."

Does this sound to you the verdict of a bitter and twisted ST hater?

A TRICK(Y) QUESTION

Like many other readers, I upgraded from my old computer (a Spectrum) to the ST. I have many software titles for my Spectrum that are lying gathering dust and I'd like to play some of them again. To do this I need an emulator and my games on 3.5" disks.

I have a friend with a Spectrum who has a 3.5" drive that he can put the games onto, so all I need is the emulator. I have another friend (yes, another!) who has a modem and would be prepared to run up his phone bill to get one.

The question is, do you or any of your readers know of any decent Spectrum emulators, either on the market or PD. Turning an ST into a Spectrum may sound a bit weird but there are good games on it that are not out on the ST. Any information will be gladly received and looked into.

Jason King
Suffolk

Erm... Don't know what to say, really, Jason. It so happens I've just bought a CD player, but I've got a lot of old Gary Glitter tapes that I'd like to keep on playing. £10 is such a lot to pay for a CD, don't you think? So any information on crackle-and-hiss simulators for the CD will be gladly received and looked into.

Seriously, though, I do realise that it's not easy to give up an extensive software collection when you upgrade. I too had tearfully to part with a considerable number of CPC games when I bought my ST. And though I don't think that a Spectrum emulator would be quite the right approach, I have to say I don't quite know what is.

Any suggestions, readers? Write to: Software upgrading, ST Format, *Beauford Court, 30 Monmouth St, Bath Avon BA1 2AP. And try and keep 'em serious!*

ST FORMAT REVELATIONS

Your PCFORMAT program on *ST Format* Cover Disk 5 is certainly a useful utility, as it allows ST-formatted disks to be read by IBM machines. What the blurb failed to mention is that PCFORMAT formats 3.5 inch disks on one side only, giving a mere 360k instead of 720k. Very handy for ST owners with single-sided drives, admittedly, but annoying for those of us who need the space a double-sided disk offers.

There is a more direct method of making ST-formatted disks readable by IBM machines. The only difference between the two disk formats is the first three bytes on track 0. IBM PCs and PS/2s expect to see EB3490 here. However, the ST's less rigid formatting system writes 00004E instead.

Making disks readable for IBM machines therefore becomes only a matter of using a disk editor to change these values from 00004E to EB3490 on a double-sided disk. No harm will come of this – I have been using disks altered in this way for some months, without incident.

For your writer to suggest that we should "feel sorry for the older, more basic technology inside the PC" because it can't read Atari-formatted disks seems rather iffy to me, considering this minor disk incompatibility is due to duff Atari programming! My Atari ST is in the repair shop for the third time in two years, while my IBM workhorse continues to run error-free. Draw your own conclusions!

Derek Paterson
Largs, Ayrshire

Are you suggesting, Derek, that we're not wholehearted fans of the costly and cumbersome machine that is the PC compatible? Are you implying that we reckon you can get more and better games, that a program such as Calamus *is superior to anything comparable on the PC and the ST's built-in MIDI makes it infinitely superior as a machine for musicians?*

OK, we'll come quiet, it's a fair cop, that's exactly what we're saying. We stand by all the above.

Here's £25: buy your PC a bunch of flowers and a Get Well card.

"NOT VALUE FOR MONEY" SHOCK

On reading a copy of your beloved magazine, I could not help myself but to reply to your question brought on from Jonathan Khan's letter (issue 5). I don't reckon we are getting value for money from ST games, quite simply because I complete them too quickly. The last two games I purchased, *Xenon II* and *Strider*, were completed after a week, roughly speaking. Both games were very good, but if they were made just a little bit harder, I would have appreciated them more.

I don't mean just the examples above either, virtually all of my games have been completed with ease. They don't all have to be that way: games like *New Zealand Story*, *Xenon* and *R-Type* have all given me a great deal of lasting pleasure, and prove to other programmers that games can last more than a week.

It would be a great boost if your reviewers could tell us readers if the games could be completed fairly quickly, please!?

Keep up the good work.

Daniel Alford
Herts

It's not easy for us to say how long a game will take to complete, Daniel, and I'm surprised you haven't seen why. If you finished Xenon II *within a week you're obviously a well hard gamester. But we aim to keep happy people who've only just received their ST; people who've been used to 8-bit standards of games; and people who use their ST for serious purposes and just the occasional game. None of those kinds of user is likely to finish* Xenon II *– ever, let alone within a week.*

Given this wide range of games playing experience and ability, I think programmers do rather well with what is quite obviously an impossible task.

BLACK MARK

I'm writing about the letter from Joseph Adjare – and your reply – on the subject of racism in the computer industry.

In answer to the first part of your question, "Is Joseph being over sensitive?", the reply is *no*. Far from it, Joseph has taken time out to make valid comments around the observations he and, no doubt, many others have made.

In answer to the second part of that question, "Is the software industry, including *ST Format*, being insensitive?" the reply is *yes*.

From an acknowledgement which began positively by recognizing Joseph's observations around the lack of black people in games and publicity material, your response sadly becomes a clear illustration of the insensitivity within the computer media software industry, demonstrated by the way you choose to trivialise what are serious and legitimate comments.

Offering a tenner for a "Blacklist," and asking people to write to "Black Out" only goes to show how you as part of the industry see issues around black people as little more than games and jokes. This kind of behaviour reinforces the *racist* views that already exist.

I suggest that if you wish to continue finding "warm and constructive comments" in your postbag, you treat your readers and their comments with more *respect and sensitivity*.

C Christie
Coventry

You're entitled to your opinion, but I have to say I think you're talking nonsense. I would like to think we treated the letter with the blend of seriousness allied with good humour it deserved.

It seems to me the way forward in relations between people in this and other countries does not lie in kid glove treatment, with everyone afraid to speak for fear of hurting someone's feelings.

Were you in any way offended yourself, as opposed to on behalf of others? You don't say so, though by speaking for others you seem to imply that somehow they can't speak for themselves. I just don't think that's the case. ■

£25 UP FOR GRABS!

Address your observations to: The Editor, *ST Format*, Beauford Court, 30 Monmouth St, Bath BA1 2AP, marking the envelope "For Publication." We prefer short, sharp letters that make a point, rather than long, meandering efforts or lists of unconnected questions. And there's always £25 up for grabs for the best letter.

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ST UK PURPLE

FONT DISKS

● **A13** - Publishing Partner disk 1. 6 fonts: Hudson, Columbia, Devoll, Thames, Spokane and Saturn.
● **A38** - Publishing Partner disk 2. 6 fonts: Caligrify, Elegance, Courier, Roman Bookface, Westside and Avant Garde.
● **A95** - Publishing Partner disk 3. 6 fonts: Artist, Broadway, Letter Gothic, Oriental, Ultra Block and Wilkes-Barres.
● **127** - Publishing Partner/PageStream disk 4. 1 PP font: Creative. 5 PS fonts: Futura, HLVB, Lubalin, Script and HAL.
● **A137** - OVER 40 GEM GDOS FONTS: 8X8, 9X14, COMPUTER, DEVILLE, EDITOR, HAMPTON, OFFICE, SCRIBE, SPECTRUM, TIMES, UTOPIA, WESTERN, DLAN1, FAT, TEST, COMPUT, NORMAL, THIN, BOECKEL, BRUSH, CHICAGO, DOUBLE, ENGLISH, EVIDENCE, FUTURBIG, GRANDE, INTEL, MAGNETIC, MEISTER, MINIPOOL, MODERN, ROTONORM, STENCIL, XANTHUS, BLUB, ROT, INTEL16, GOTH22, GOTH22SH, NEWSTAND, MONICA, PC1500, SERIF30, AKASHI12, CAIRO, CHICAGO, COURIER, GENEVA9, LONDON, MOBILE, NEWYORCK, PREMIERE, TIMES09, TIMES10, TIMES12, TIMES14, TIMES18, TIMES24, DUTCH10E, DUTCH10N, DUTCH12E, DUTCH12N, DUTCH18E.
● **A135** - Font Master GDOS font editor.
● **A63** and A64 - FontKit V3.31 Epson, Degas and ST font editor.

CLIP ART DISKS

● **A36** - Clip Art 1 - Degas format - mainly animals, sports, Walt Disney and cars.
● **A37** - Clip Art 2 - Degas format - mainly Christmas, animals, military, Atari, Commodore, flags and Zodiac.
● **A65** - Clip Art 3 - Degas format - mainly 1930's trademarks.
● **A77** - Clip Art 4 - Degas format - mainly Althabets, Easter, Christmas, Borders, animals and famous people.
● **A78** - Clip Art 5 - Degas format - mainly Pixies, titles, Halloween, Valentines and Jewish.
● **A79** - Clip Art 6 - Degas format - mainly Sports.
● **A80** - Clip Art 7 - Degas format - mainly whymsical and cute and 2 good althabets.
● **A115** - Clip Art 8 - Degas format - mainly Atari, Walt Disney, Garfield, pointing hands, robots, hands.
● **A116** - Clip Art 9 - Degas format - mainly faces, Christmas, horses and eyes.
● **A117** - Clip Art 10 - Degas format - mainly althabets.
● **A129** - Clip Art 11 - 42 .GEM pictures.
● **A130** - Clip Art 12 - 47 .IMG pictures and 5 .GEM pictures.
The following clip art disks (13 - 25) contain .IMG format files which can be converted to other formats using disks GR20 and GR17. Each disk has a slide show program for viewing the images. All images were scanned at 200 x 200 resolution.
ALL ARE DOUBLE SIDED DISKS
● **A140** - Clip Art 13 - decorative scrolls.
● **A141** - Clip Art 14 - decorative scrolls.
● **A142** - Clip Art 15 - 19th century characters (men).
● **A143** - Clip Art 16 - 19th century characters including north and south American indians.
● **A144** - Clip Art 17 - 19th century characters including Turkish/Asian.
● **A145** - Clip Art 18 - Statues.
● **A146** - Clip Art 19 - Statues.
● **A147** - Clip Art 20 - 19th century characters.
● **A148** - Clip Art 21 - 19th century characters (men).
● **A149** - Clip Art 22 - 19th century characters, scrolls and Einstein.
● **A150** - Clip Art 23 - a variety of comical/cartoonist.
● **A151** - Clip Art 24 - happy/celebrating people.
● **A152** - CLip Art 25 - Miscellaneous, photos, cartoon and Roger Rabbit.

APPLICATION DISKS

● **A87** - Electronic Bank Statement the excellent accounts package from Budgie UK.
● **A96** - DOUBLE SIDED DISK. Sheet v2.0. powerful all features spreadsheet, includes documentation and tutorial.
● **A121** - POOLS - Expert Results Predictor v2.0 by B.Campbell very good. Programmer claims it to be more intelligent than the commercial ones.
● **W5** - Micro-Emacs editor V3.925 full screen editor includes tutorial and manual files.
● **W13** - DOUBLE SIDED DISK. STWriter Elite V3.0, English, German and Spanish versions. Includes document files etc.
● **MP21** - 4 DOUBLE SIDED DISKS. TEX the document processor and typesetting system. TEX has its own programming language, handles equations and diagrams, and has a large set of typefaces. This is a very powerful piece of software. TEX is not a wordprocessor, you will need a text editor such as Micro EMACS (disk W5). Requires 1Mb RAM and comes on 4 double sided disks with a Mega Pack price of ú10.00!
● **153 & # 154** - Tex Metafont. A 2 disk pack. An add-on that allows TEX users to create font. Also utilities, fonts and ways to include graphics in your TEX document. 2 disks @ ú3.00 each.
● **A125** - DOUBLE SIDED DISK. REQUIRES 1MB. Opus V2.10 of the spreadsheet and charting program. This package is incredible! Requires GDOS which is not PD.
● **A138** - Double Sentry V0.00 the accounting program by Graham R Hutcheon. This is a fully working version that does all aspects of accounts accept VAT, although a VAT version is available. Excellent.

UTILITY DISKS

● **A31** - This disk contains the following 1st Word printer driver files: SG10STAR, KXP1091C, PR1215, PROWRT, EPHEBREW, ST130, ESFX80, PAN109B, OLYMPIA, EPS_RX80, LQ800_G, PAN109,GEMINI, LQ800, SG10_GPH, EPS_LX80, OKI192, LX80_G, BRO10P, BRO12P, BRO15P, BRO_HR15, T321SLF, QUME,,SG10TEWF, PROWR1ST, SG10IBM, OKI92,ASCII, 1STNX1, SG10-1ST, SLMM804, SMM804_G, NEC_P6, SLM804, CITOH.
● **A40** - Hard Disk disk 1: Directory counter, Gem Soft a 40 folder fix, Hard Auto, SBackup, Turtle backup v3.01 and UNTurtle restore v1.1.
● **A52** - Hard Disk disk 2: FolderXXX allows you to specify upto 999 folders - a 40 folders fix, an excellent directory lister, Hard Disk Install, Hard Disk Auto boot, and other HD utilities.
● **A41** - Monochrome emulator version 5. Run monochrome programs on a colour monitor. TOS 1.09 compatible. CMFonts converts Macintosh fonts to ST GDOS format.
● **A51** - This disk is packed full of Comms programs. They have all been ARChived down to save space. The following is a list of the .ARC files: Gas Term, BMODEM, Solar Term, Terminal, My Term, STerm, Con_ST, STar Term, Term_c, Jam Term, GEM Term and XMODEM Term. Also on the disk a program to unARC them.
● **A88** - Double Click Format v3.03 THE ST disk formatter 9/10 sector, 80/82 tracks, regular/fast format. Can format Spectre 128 disks, place MSDOS boot sector, it can write an executable bootsector to do thngs like bypass HD autoboot, setime time, run a program that you write and call COMMAND.PRG and loads of other things. Meg A Minute Elite v2.1, TOS 1.09 compatible 1Mb a minute HD backup.
● **A90** - Superboot v5.5 THE ST Boot program - choose: desktop accessories, AUTO programs to run, DESKTOP.INF, GDOS ASSIGN.SYS, display a welcome screen, date/time setter, inforce a password on booting and loads more including even stopping Super Boot from running with a 'key hold' includes a 50K document file, excellent.
● **A97** - Sticker III. THE disk label program full GEM includes dozens of icon graphics that can be included in label. Monochrome monitor required.
● **A109** - Quick Disk. Quick Find v1.5 is a program developed for locating files. it allows any number of drives to be searched, producing output which can be printed to screen, printer or file. Quick Index v1.5 - the ST System Performance Evaluation Program, Quick ST v1.2 - the screen accelerator for all Atari ST computers, Quick View v1.3 excellent document browser. Quick Inf V1.3 is a program developed primarily to allow the user to change the desktop window directory search masks. Quick Label V1.1 the label utility. Quick Print.
● **A111** - Head Start v1.1 allows you to auto-boot any type of program from your AUTO folder, including GEM programs. You can choose from among a list of up to 128 programs to auto-boot, using the mouse.
● **A124** - ARChiver: ARC V5.21b, ARCShell V2.0 and V2.05 and a utility to switch back and forth between LHARC and ARC. DAYS2 reads in the computer's time and date, and then presents you with various alternate versions of that date: The Julian Date, the Star Date, the Earth Date, the number of days left in the year, and whether or not this is a leap year. You will also be shown what time it is in Greenwich Mean Time (GMT) in Daylight Savings Time, and in Standard Time.
● **STW41** - FSelect v3.89, ICone.Acc and ACache. As featured in Issue 41 of STWorld.
● **A126** - Desk Manager V2.6 will auto select the correct DESKTOP.INF depending on the resolution and select AUTO programs, The Little Green Selector V1.6 is another alternative file selector that includes a FIND option and is excellent. Pack and UNPack will compress a program file and still make it executable! Pin Head V1.4 is a program that speeds up file loading.
● **A128** - Recover is a program that copies any number of specified sectors on a disk to a named file on another disk, this is very useful if you have garbaged you directory or part of your disk. BootInfo allows you to put any text on screen at boot up.
● **A134** - Boot Drive Select allows you to select a drive to boot from when you reset your ST. GrafTool allows you to type in mathematical functions of one variable and graph them. Chart Maker allows you to input data and it will draw a graph.
● **A136** - The British Telecom Inland Call Calculator v1.02 is a telephone call cost calculator.
● **DA9** - DOSACC V2.6g the desktop accessory that basically it displays just about everything the user needs to know, and allows the setting of most ST and printer configurations.

FSelect on disk STW41

GAME DISKS

Budgie UK P.D. Licenseware games:

● **G17** - Damonoid - arcade. # G18 - Football - speculation game.
● **G19** - Blitz III - arcade.# G20 - Othello - board game.
● **G33** - Doctor Boris and Puzzler - TNT. # G36 - Tycoon - Adventure/simulation.
● **G38** - MoneySpinner - slot machine. # G39 - Ace Invaders - arcade.
● **G40** - Zenith - arcade. # G41 - MaelStrom - arcade.
● **G42** - Speculator - simulation. # G45 - Zephod and Gold Rush - labyrinth.
● **G54** - Line of Four - connect. # G55 - Word Puzzle generator.
● **G56** - Make a Break - Quizz. # G57 - Parabellum - platform.
● **G58** - Tri-heli - Arcade. # G59 - Perils of Penfold - Arcade.
● **G60** - Operation Angelica - Battle. # G64 - Bandit - One armed bandit.
● **G65** - Impulse - shoot 'em up. # G66 - Carrier Attack - Battleships type.
● **G68** - Slippery Sid. # G69 - Psicotic - Shoot 'Em Up.
● **G70** - Space Blob - Platform type. # G71 - Scary - Platform type.
● **G72** - Death Camp - graphic adventure # G73 - A Quest for Galaxia - Shoot 'em up.
● **G74** - Sub Hunt and Sea Fisherman - Battleships and a shoot 'em up.
● **G75** - Inferno.

BUDGIE1 - Budgie UK's 6800 Assembler library of routines.

NOTE: Only G20 and G18 work in colour and monochrome. All the other Budgie games are colour only.
We always have the latest Budgie games as soon as they are released.

GRAPHICS DISKS

● **GR3** - MASTER Painter - excellent graphics program works in ALL resolutions in NEO Degas and Doodle formats. Has multiple screens 6 on 1/2 Mb, upto 24 if you have enough RAM, animate between these multiple screens, all the usual tools plus rotate to any angle, skivle- horizontal and vertical, zoom, twist, built in converter, very well laid out and designed- full GEM this is a truely brilliant program. Fill option is a bit dodgy.
● **GR6** - Degas disk - 155 fills, 10 brushes, 7 fonts, 20 printer drivers including NECP3 and P6, Epson JX80 colour (you should be able to use this for STAR LC-10), plus programs to manipulate Degas Elite.
● **GR11** - Disk full of picture utilites: Tiny Stuff v3.4 and Tiny View v4.21, Pic Switch v0.7, NEO2Mono, Convert, Mono2Medium, NEO2Degas, plus 3 screen to disk savers.
● GR15 - JIL2D CAD drafting program from Jesus Is Lord corp. Looks good and is very complicated. This disk is double sided and requires 1Mb RAM and monochrome monitor.
● GR17 - Picture convertors. Print Master/Degas convertor, NEO/Degas/Tiny/IFF/SPEC512 to NEO/Degas/IFF convertor. IMG/AIM convertor IMG/AIM to Postscript, Mac GIF stripper, Spectrum 512 .SPC/.SPU to GIF convertor and Spectrum 512 SPC, SPS and SPU slide show.
● **GR19** - Fractal Zoom V0.7 is the most comprehensive fractal generation program available on PD.
● **GR20** - .IMG utilities. Convert2IMG V0.9 converts any Degas format, Tiny, NEOchrome, MACPaint, Spectrum compressed and uncompressed to a monochrome .IMG format. IMG Quick View an .IMG file Viewer. The .IMG slide show V1.1 and IMGCAT V1.0 the .IMG cataloguer and printer.

LANGUAGE DISKS

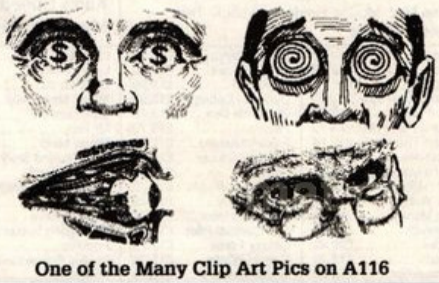
● **L13** and L14 Modula 2 development system V1.0 from Ana systems. Consists of the M2/68 compiler, linker, libraries, development shell and Micro-Emacs editor. Requires minimum 520St with 2 drives OR a 1040ST. This is a 2 disk set. Both disks are needed.
● **L15** - Sozobon C Compiler. A complete implementation of the Clanguage as defined by Kernighan & Ritchie and prevailing practice. The package includes a compiler, optimizer, assembler, and linker, as well as several other associated utilities. L15 is a double sided disk, Sozobon C is available on 2 single sided disks @ ú3.00 each called L15a and L15b. This disk is NOT for the beginner as it is poorly documented, but it is still an excellent disk.

MUSIC DISKS

● **M15** - The COSH 16 Voice MIDI Sequencer. A fully working MIDI sequencer by Henry Cosh, includes: Multi-Voice recording using seperate MIDI channels or programs, split MIDI keyboards and/or velocity ranges. Variable resolution Map of 8 Voices on Desktop continuously. Mouse click sampling of any music in the Map. Simple editing using mouse and MIDI keyboard on blocks down to hemi-demi-semi-quavers, with no MIDI event lists! Sections for naming passages plus setting Time signature, tempo, and local quantization.Variable resolution metronome on any MIDI channel, program, note, velocity. May be driven by external MIDI clock. Full Voice/Block copy, move, quantize, randomize, transpose, velocity update. Filtering of controllers, note ranges and velocity ranges on input, output or by direct manipulation. Undo/Redo on all operations that change the music and Through channel specification for each voice. All MIDI notes/channels/programs may be input from a MIDI keyboard, or typed on the computer keyboard. MIDI channels and progam numbers base may be selected to be 0 or 1.

DEMO DISKS

● **D122** - DOUBLE SIDED DISK. The Union demo! Demos from TEX, TCB, TNT crew, Delta Force, The Replicants and Level 16. This demo is absolutely brilliant! It requires a colour screen and a joystick.
● **D123** - DOUBLE SIDED DISK. Snow Man demo. Great Digitised sound and picture demo of the snowman story. The song 'Walking on the air' and ditigised pictures telling the whole story. Excellent. Requires colour screen, and 1Mb RAM.
● **D125** - DOUBLE SIDED DISK. The CareBears Cuddly demos. The CareBears did some demos on the Mega Union demo. Here they have created the best demos on the ST to date! you must move a jet propelled man about the screen landing infront on the entrances to the demos. The quality of the demos is amazing and we would go as far in saying better than the Union demo! This is a mega mega demo disk that requires a colour screen.



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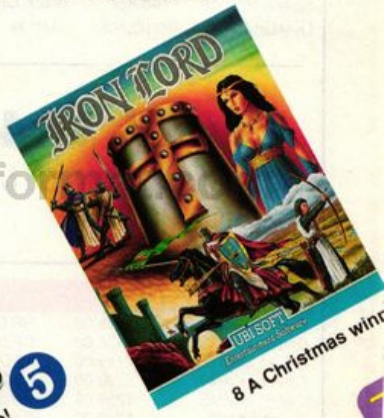

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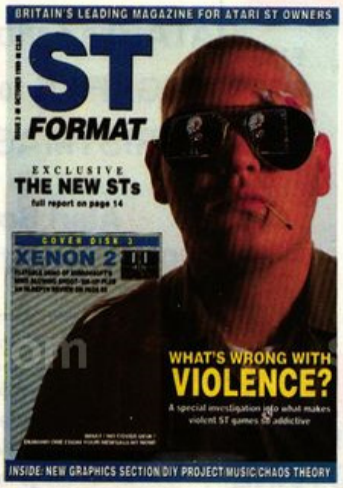

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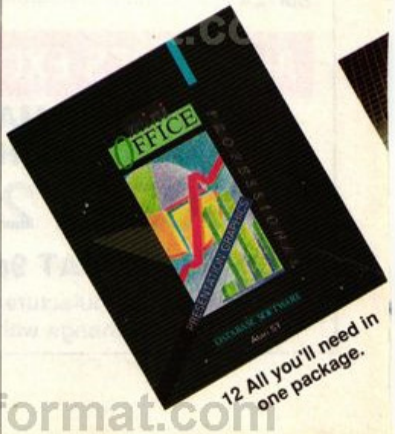

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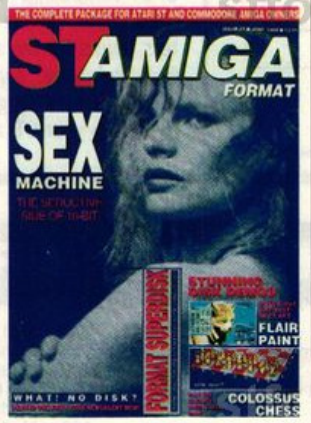

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WELCOME!

Regular readers excuse us, pray, while we welcome aboard all those for whom Christmas meant a large box containing an ST and a special edition of ST Format

We, the *ST Format* team, welcome all our new readers – many thousands of you, in fact, if we've done our sums right. And may we say what excellent taste you have, not only to buy *ST Format* (assuming you're not standing in the newsagent copping a free read), but for having chosen the ST in the first place. Nice one.

We know from your calls and letters that your first day or two with your new ST was helped considerably by a special introductory issue of this magazine that was in the box.

Now you've had a taste of what *ST Format* is all about, we hope you plan to stay with us. Every month there's a Cover Disk packed with games, demos, utilities and programs. Inside the magazine you'll find comprehensive coverage of every application of the ST, be it games, music, programming, graphics or business – all areas at which the ST excels. We don't believe that a magazine has to be either entirely devoted to games, or so technically abstruse that no-one but professional programmers understand what's going on. Most of us enjoy a blast, but expect more from our machines.

You'd be wise, though, to ensure that you receive a regular copy of *ST Format*, either by filling in and sending off the subscription form a few pages back, or by placing a regular order with your newsagent using the form on this page. While you're doing so you may care to take a look at the list of back issues still available, both of *ST Format* itself and of *ST Amiga Format*, the magazine out of which we were born. But you'll need to move fast, as you see from the number of issues that have completely sold out.

1990 has already begun in exceptionally positive mood for the ST and its various relations. As you'll have read in the news pages, the new laptop STACY has begun to find its way into the shops, and the upgraded STE is doing the same. (We understand it's selling very fast indeed.) Your new machine has a long and healthy future ahead of it. It is an exceptionally powerful and versatile machine, and we congratulate you on your choice. For a while you may find it all rather confusing, but eventually – with our help – things will start to become clear.

If you're particularly foxed by some aspect of ST computing, or there's something you wish we'd cover, please write to the Editor (see letters pages for the address). He reads every letter, and your suggestions do make a big difference to what goes into *ST Format*.

Enjoy your ST, and welcome aboard! ■

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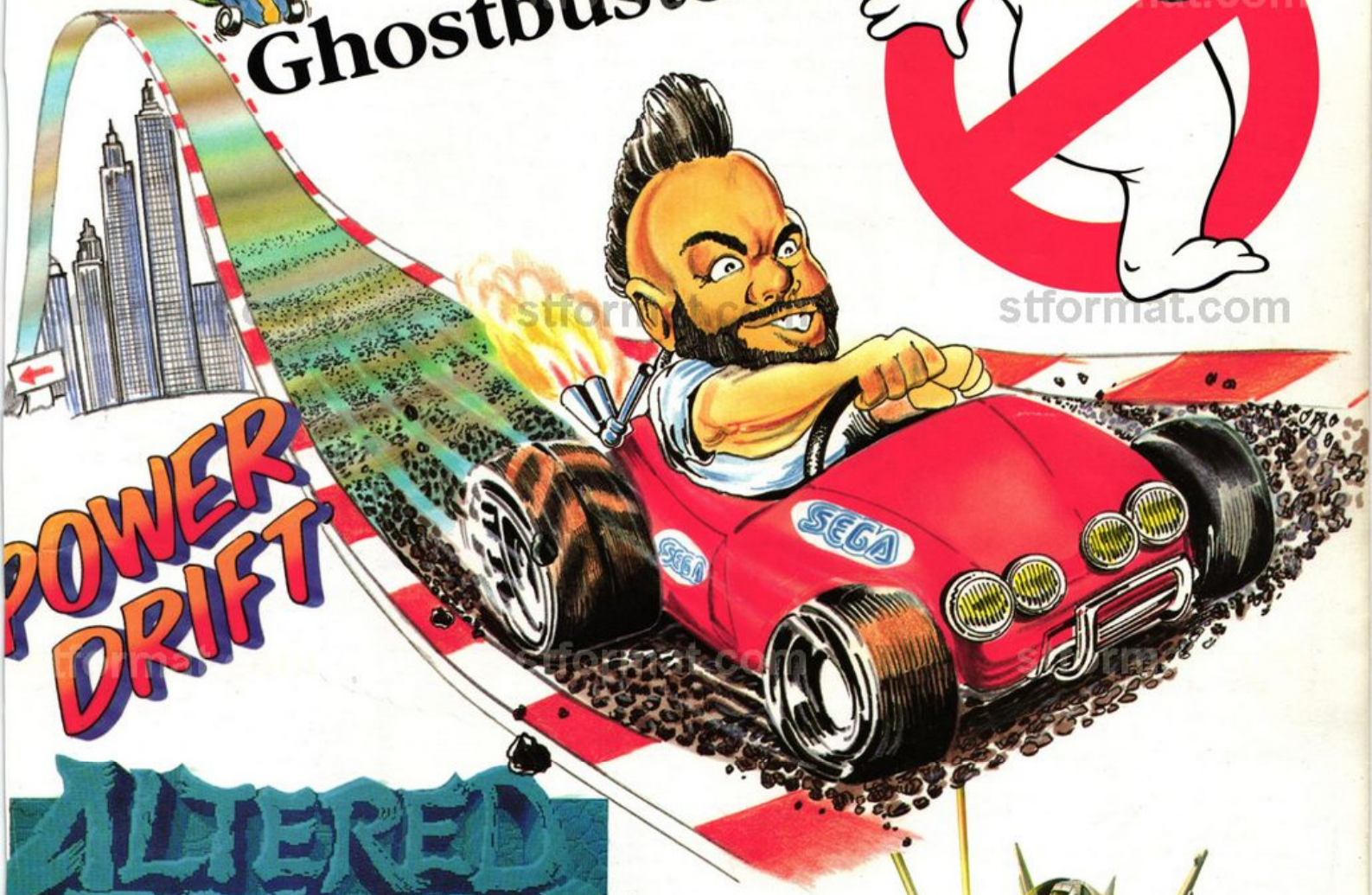

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